

LOGARITHMORVM  
CANONIS DESCRIPTIO.

S E V

ARITHMETICARVM SVPPVTATIONVM  
MIRABILIS ABBREVIATIO.

*Eiusque vsus in utraque Trigonometria ut etiam in omni  
Logistica Mathematica, amplissimi facillimi &  
expeditissimi explicatio.*

Authore ac Inuentore IOANNE NEPERO,  
Barone Merchistonij, &c. SCOTO.



LVGDVNI,  
Apud Barth. Vincentium.

M. DC. XX.

Cum Priuilegio Caesar. Majest. & Christ. Galliarum Regis.

*Pertinet ad Bibliotheca J. Fran. Franci Gium  
ex Testam<sup>to</sup> M<sup>o</sup>mi. et Rev. D. Ascanij Pinardi*





Illultrissimo, & optimæ spei  
PRINCIPI CAROLO,  
POTENTISSIMI, ET INVICTISSIMI,  
IACOBI D. G.  
MAGNÆ BRITANNIÆ,  
ET HIBERNIÆ REGIS,  
Filio vnico, V Valliæ Principi, Duci Eboraci,  
& Rothesaïæ, magno Scotiæ Senescallo, ac  
Insularum Domino, &c.

D. D. D.



*VVM nullum sit studium, vel doctrina genus  
( Illustissime Princeps ) quod generosa ac he-  
roïca ingenia, ad præclara quaque & sublimia  
magis acuat, contrâque tarda & insulsa pectora  
magis obtundat, quàm mathesis: non mirandum est eruditos  
& magnanimos Principes eam magnoperè præteritis omni-  
bus seculis in deliciis habuisse, imperitos vero & ignauos  
homines eandem velut ignorantia suæ & ignauiæ hostem,*

*A 2 semper*

semper odio acerrimo prosequutos esse. Cur non igitur notitium hoc nostrum inuentum, cum obusa ingenia & humi repentia refugiat, ad sublime Celsitudinis tuæ ingenium & patrocinium confugiet & transuolabit? Presertim cum noua hæc Logarithmorum methodus, omnem illam pristinae Anthesios in calculo difficultatem (quæ alioqui generosam tuam indolens offendere posset) penitus è medio tollat: & ad subleuandam memoriæ imbecillitatem ita se accommodet, ut illius adminiculo facile sit, plures quæstiones mathematicas unius horæ spatio, quàm pristina & communiter recepta forma sinuum, tangentium, & secantium, vel integro die absolvere. Ideoque tuæ Celsitudini tantò gratius hoc inuentum fore speramus, quantò facilem magis & expeditam reddit Logisticam: quid enim iucundius, & in omni disciplinarum genere præstantius esse possit, quàm præclara quæque & sublimia, exactè, ex tempore, facili negotio, nulloque vel temporis vel laboris dispendio expedire? Rogamus igitur (Serenissime Princeps) ut munusculum hoc, licet exiguum, & longe infra meritorum & dignitatis tuæ fastigium, certissimi tamen obsequij pignus & symbolum, pro humanitate tuâ boni consulas. Quod si te feciss. intellexero, vel hac sola ratione animos mihi jam morbis penè confecto addideris, ad alia propediem, his fort. esse maiora & tanto principe magè digna molliendum. Interim illustrissimos tuos parentes magna magnæ BRITANNIÆ luminaria, teque præclarum tam præclare stirpis ramum, & futura nostræ tranquillitatis spem, diu nobis incolumes seruet & protegat summus ille Rex Regum, & Dominus dominantium, cui omnis honor & gloria in æternum tribuatur.

Serenissimæ tuæ Celsitudinis obsequio  
addictissimus

IOANNES NEPERVS.

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IN MIRIFICVM LOGARITHMORVM  
*Canonem*

P R Æ F A T I O.

**Q**VVM nihil sit ( charissimi mathematicarum cultores ) mathematicæ praxi tam mole-  
stum, quodque Logistas magis remoretur,  
ac retardet, quàm magnorum numerorum  
multiplicationes, partitiones, quadratæque ac cubicæ  
extractiones, quæ præter prolixitatis tædium, lubricis  
etiam erroribus plurimùm sunt obnoxie: Cœpi igitur  
animo reuoluere, quâ arte certâ & expedita, possem  
dicta impedimenta amoliri. Multis subinde in hunc  
finem perpensis, nonnulla tandem inueni præclara  
compendia: alibi fortasse tractanda: verùm inter om-  
nia nullum hoc vtilius, quod vnà cum multiplicatio-  
nibus, partitionibus, & radicum extractionibus arduis  
& prolixis, ipsos etiam numeros multiplicandos, diui-  
dendos, & in radices resoluendos ab opere reiieit, &  
eorum loco alios substituit numeros, qui illorum mu-  
nere fungantur per solas additiones, subtractiones, bi-  
partitiones, & tripartitiones. Quod quidem arcanum,  
cùm ( vt cætera bona ) sit, quo communius, eo melius:  
in publicum mathematicorum vsum præpalare libuit.  
Eo itaque liberè fruamini (matheseos studiosi) & quâ  
à me profectum est beneuolentiâ, accipite. Valete.

Ad

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AD LECTOREM TRIGONOMETRIÆ  
*studioſum.*

Q Vi Cœli, atque ſoli, & ſinuofos æquoris arcus  
Metiri, & curuos vis numerare gradus;  
Quique per expanſum tenſas cognoscere rectas,  
Meſurat radio quas GEODÆTA ſuo:  
Maſte aſſo, inſta operi, LOGARITHMIS vtcre, quos hîc  
Rara Caledonij, dat Baro, gemma ſoli.  
Fruſtrâ erit hinc multis tabulas extendere chartis:  
Fruſtrâ erit & calamo crebra litura tuo.  
Quæ niſi multiplici nunquam potuere priores,  
Actu vno hîc facili tu numerare queas.  
Ad SOPHIAM quid ferto noui, quod priſtina vincat,  
Quiſquis ab ingenio nomen habere cupis.

PATRICIVS SANDÆVS.



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IN LOGARITHMOS D. I. NEPERI.

**R**Egiomontanus fertur per apheræsim, atque  
Prosthesein ignoros eliciuisse sinus:  
Atque aliquos aliquot sinuum quæsitæ Logistas  
Consimili legimus notificasse modo:  
Nemo tamen cunctos poterat sic solvere nodos,  
Aut certâ rectam lege docere viam.  
Musarum NEPERVS honos, & gloria gentis  
Scotigenæ, paruo præstat virumque libro.  
Nomine sic NEPAR, PARILI fit & omine NON PAR,  
Quum nou hac habeat NEPAR in arte PAREM.



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ALIVD.

**B**VCHANANE tibi NEPERVM adscisce sodalem,  
Floreat & nostris Scotia nostra viris:  
Nam velut ad summum culmen perducta Poësis  
In te stat, nec quò progrediatur habet:  
Sic etiam ad summum est culmen perducta Mathesis,  
Inque hoc stat, nec quò progrediatur habet.

ANDREAS IVNIUS.

*Philosophia Professor in Academia Edimburgena.*



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IDEM AVTHOR AD LECTOREM.

**H**ic liber est minimus, si spectes verba, sed vsura  
Si spectes, Lector, maximus hic liber est.  
Disce, scies paruo tantum debere libello  
Te, quantum magnis mille voluminibus.

A N D R E A S I V N I V S.

*Philosophia Professor in Academia Edimburgena.*



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I N L O G A R I T H M O S.

**Q**ua tibi cunque sinus, tangentes atque secantes  
Prolixo praestant, atque labore graui:  
Absque labore graui, & subito tibi, Candide Lector,  
Hac Logarithmorum parua tabella dabit.



MIRI





# MIRIFICI LOGARITHMORVM

CANONIS DESCRIPTIO,  
EIVSQUE VSVS IN VTRAQUE TRIGO-  
nometria, vt etiam in omni Logistica Mathemati-  
ca, amplissimi, facillimi, & expeditissimi explicatio.

LIBER PRIMVS.

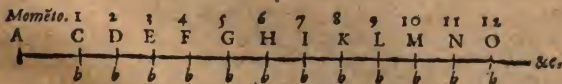
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DE DEFINITIONIBVS.

CAP. I.

Definitio I.

**I**N *NEA* aequaliter crescere dicitur, quum punctus  
eam describens, aequalibus momentis per aequalia in-  
terualla progreditur.



Sit punctus A, à quo ducenda sit linea fluxu alterius puncti,  
qui sit B. fluat ergo primo momento B ab A in C. Secundo  
momento à C in D. Tertio momento à D in E. atque ita  
deinceps in infinitum describendo lineam A C D E F, &c.  
B inter

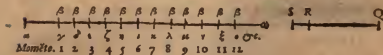
interuallis A C, C D, D E, E F, & cæteris deinceps æqualibus, & momentis æqualibus descripris: dicetur hæc linea per definitionem superius traditam æqualiter crescere.

### Corollarium.

*Vnde hoc incremento quantitates æquidifferentes temporibus æquidifferentibus produci est necesse.*

Vt in superiori schemate vnico momento B ab A in C, & tribus momentis ab A in E progressum est. Sic sex momentis ab A in H, & octo momentis ab A in K. Sunt autem illorum momentorum vnus & trium, & horum sex & octo differentiarum æquales, scilicet duorum. Sic etiam erunt quantitarum illarum A C, & A E, & harum A H, & A K differentiarum C E, & H K, æquales: æqui differentes ergo, vt supra.

2. *Linea proportionaliter in breuiorem decrescere dicitur, quum punctus eam transcurrentis æqualibus momentis, segmenta abscondit eiusdem continuo rationis ad lineas à quibus absconduntur.*



### Exempli gratia.

Sit linea sinus totius  $\alpha\alpha$  proportionaliter minuenda. Sit punctus transcurso suo eam minuens  $\beta$ . Sit denique ratio segmentorum singulorum ad lineas à quibus absconduntur, vt Q. R ad Q. S. Quæ ergo ratione secatur Q. S. in R. eadem ratione (per 10. 6. Eucl.) secetur  $\alpha\alpha$  in  $\gamma$ . atque sic  $\beta$  transcurrentis ab  $\alpha$  in  $\gamma$  primo momento ab  $\alpha\alpha$  abscondat  $\alpha\gamma$  relicta linea seu sinu  $\gamma\alpha$ . Ab hac autem  $\gamma\alpha$  procedens  $\beta$  secundo momento abscondat simile segmentum quale est Q. R ad Q. S. quod sit  $\gamma\delta$  relicto sinu  $\delta\alpha$ . A quo proinde tertio momento abscondat  $\beta$  simili ratione segmentum  $\delta\epsilon$  relicto sinu  $\epsilon\alpha$ . A quo similiter quarto momento abscondatur (fluxu  $\beta$ ) segmentum  $\epsilon\zeta$  relicto sinu  $\zeta\alpha$ . Ab hoc  $\zeta\alpha$  quinto momento abscondat  $\beta$  eadem ratione segmentum  $\zeta\eta$  relicto sinu  $\eta\alpha$ . Et ita deinceps, in infinitum. Dico itaque hic sinus totius lineam  $\alpha\alpha$  (ex præmissa definitione) proportionaliter decref

decreſcere in ſinum  $\alpha$ .  $\omega$ . aut in alium quemvis vltimum in quo ſiſtit  $\beta$  & ſic in aliis.

### Corollarium.

*Vnde hoc aequalibus momentis decremento, eiſdem etiam rationis proportionales lineas relinqui eſt neceſſe.*

Quæ enim ſuperius eſt continua proportio ſinum minuendorum,  $\alpha$   $\omega$ .  $\gamma$   $\omega$ .  $\delta$   $\omega$ .  $\epsilon$   $\omega$ .  $\zeta$   $\omega$ .  $\eta$   $\omega$ .  $\iota$   $\omega$ . &  $\kappa$   $\omega$ . & c. atque ſegmentorum ab eis abſciſſorum  $\alpha$   $\gamma$ .  $\gamma$   $\delta$ .  $\delta$   $\epsilon$ .  $\epsilon$   $\zeta$ .  $\zeta$   $\eta$ .  $\eta$   $\iota$ .  $\iota$   $\kappa$  &  $\kappa$   $\lambda$ . Eadem erit neceſſario etiam ſinum relictorum proportio, ſcilicet,  $\gamma$   $\omega$ .  $\delta$   $\omega$ .  $\epsilon$   $\omega$ .  $\zeta$   $\omega$ .  $\eta$   $\omega$ .  $\iota$   $\omega$ .  $\kappa$   $\omega$ . &  $\lambda$   $\omega$ . vt ex 19. prop. 5. & 11. prop. 7. Eucl. patet.

3. *Quantitates ſurdæ, ſeu numero inexplicabiles, numeris quàm proximè deſiniri dicuntur, quum numeris maiuſculis, qui à veris ſurdarum valoribus vnitatis non differant, deſiniuntur.*

Vt ſit ſemi-diameter ſeu ſinus totus rationalis numerus 10000000. erit ſinus 45. graduum radix quadrata 200000000000000. quæ ſurda ſeu irrationalis & numero inexplicabilis eſt, atque inter terminos 7071067. minorem, & 7071068. maiorem includitur. Ab horum itaque vtrouſque non differt vnitatis. Surdus igitur ſinus ille 45. graduum quàm proximè dicitur deſiniri & explicari, quum per numeros integros 7071067 vel 7071068. neglectis fractionibus deſinitur. In magnis etenim numeris ex fragmentis vnitatis ſpectis nullus error ſenſibilis emergit.

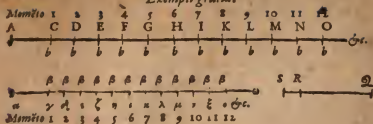
4. *Synchroni motus ſunt, qui ſimul & eodem tempore ſunt.*

Vt in ſuperioribus eſto quod B. moueatur ab A in C. eodem tempore quo  $\beta$ . mouetur ab  $\alpha$ . in  $\gamma$ . dicentur rectæ A C, &  $\alpha$   $\gamma$  ſynchono motu deſcribi.

### Deſinitio & Poſtulatío.

5. *Quum quolibet motu & tardior & velocior dari poſſit, ſequitur neceſſario cuique motui æquielocem (quem nec tardioſiorem, nec velociorem deſinimus) dari poſſe.*
6. *Logarithmus ergo cuiusque ſinus, eſt numerus quem proximè deſinientem lineam, quæ æqualiter creuit interea dum ſinus totius lineæ proportionaliter in ſinum illum decreuit, exiſtente viroque motu ſynchono, atque initio æquieloce.*

Exempli gratia.



Repetantur ambo schemata & moueatur B. semper & vbique eadem seu æquali velocitate qua cœpit moueri  $\beta$  initio quum est in  $\alpha$ . deinde primo momento procedat B. ab A in C, & eodem momento procedat  $\beta$  ab  $\alpha$  in  $\gamma$  proportionaliter: erit numerus definiens A C logarithmus lineæ, seu sinus  $\gamma$ . Tum secundo momento promoueat B à C in D, & eodem momento promoueat proportionaliter  $\beta$  à  $\gamma$  in  $\delta$ . erit numerus definiens A D logarithmus sinus  $\delta$ . Sic tertio momento procedat æqualiter B à D in E, & eodem momento promoueat proportionaliter  $\beta$  à  $\delta$  in  $\epsilon$ . erit numerus definiens A E logarithmus ipsius sinus  $\epsilon$ . Item quarto momento procedat B in F, &  $\beta$  in  $\zeta$ , erit numerus A F logarithmus sinus  $\zeta$ . Atque eodem continuò seruatò ordine erit (ex definitione superius tradita) numerus A G logarithmus sinus  $\eta$ . A H logarithmus sinus  $\iota$ . A I logarith. sinus K. A K logarith. sinus  $\lambda$ . & ita in infinitum.

### Corollarium.

Unde sinus totius 10000000. nullū seu 0 est logarithmus: & per consequens, numerorū maiorū sinu toto logarith. sunt nihilo minores. Quum enim ex definitione pateat, quod à sinu toto decrecentibus sinibus, à nihilo accrescant logarithmi, ideo contià crescentibus numeris (quos adhuc sinus vocamus) in sinum totum, scilicet in 10000000. decrecant, in 0, seu nihilum logarithmi est necesse. Et per consequens numerorum crescentium ultra sinum totum 10000000. (quos secantes aut tangentes, & non amplius sinus vocamus) logarithmi erunt minores nihilo.

Itaque

*Itaque logarithmos sinuum, qui semper maiores nihilo sunt, abundantes vocamus, & hoc signo †, aut nullo prae notamus. Logarithmos autem minores nihilo defectuos vocamus, prae notantes eis hoc signum. —*

## ADMONITIO.

**E**Rat quidem initio liberum cuilibet sinui, aut quantitati nullum seu 0, pro logarithmo attribuisse: sed praestat id praeter ceteris sinui toti accommodasse: ne vnquam in posterum vel minimam molestiam parturiret nobis additio & subtractio eius logarithmii in omni calculo frequentissimi. Ceterum etiam quia sinuum & numerorum sinu toto minorum frequentior est usus: eorum igitur logarithmos abundantes ponimus: aliorum vero defectuos, nisi contra fecisse initio liberum erat.

## DE LOGARITHMORVM

propositionibus.

## CAP. II.

## Propositio I.

**P**roportionalium numerorum, aut quantitatum, æqui-differentes sunt Logarithmi.

Vt proportionalium sinuum, scilicet  $\gamma^m$  qui se habet ad  $\omega$ , vt  $\omega$  ad  $\lambda^m$ . Logarithmi respectiuè sunt numeri definièntes A C, A E, A H, & A K, (vt per def. 6. patet.) differunt autem A C, & A E differentia C E: atque A H, & A K differentia H K. Sunt autem ex 1. def. & suo corollario C E, & H K æquales: æqui-differentes igitur sunt logarithmi præfatorum sinuum proportionalium. Et ita in omnibus proportionalibus.

Nam quas affectiones & symptomata Logarithmi ab ortu & genesi sua acquisuerint, eas in posterum reuincat, est necesse. Ab ortu autem & in genesi sua imbuuntur hac affectione, & hæc lex illis præscribitur, vt sint æqui-differentes, quum

corum finis seu quantitates sint proportionales ( prout ex def. Logarithmi, & vtriusque motus patet, & in constructione logarithmorum amplius aliquando patebit, ) proportionalium ergo quantitatuum æquidifferentes sunt Logarithmi.

2. *Ex trium proportionalium Logarithmis, duplum secundi seu medij minutum primo, æquatur tertio.*

Quum, per prop. 1. differentia logarithmorum primi & secundi æquetur differentia logarithmorum secundi & tertij, id est, secundus minutus primo æquetur, tertio minus secundo: Ideo addito secundo ad vtrumque æquationis latus proveniet bis secundus seu duplum secundi minutum primo æquale tertio, quod erat probandum.

3. *Ex trium proportionalium logarithmis, duplum secundi seu medij æquatur aggregato extremorum,*

Ex præcedente prop. 2. duplum secundi minutum primo æquatur tertio. Vtrique æqualium laterum adde primum, & exurger duplum secundi æquale primo & tertio, id est, aggregato extremorum, quod erat demonstrandum.

4. *Ex quatuor proportionalium logarithmis, aggregatum secundi & tertij minutum primo æquatur quarto.*

Quum per 1. prop. ex quatuor proportionalium logarithmis, secundus minutus primo, æquetur quarto minus tertio, vtrique æqualitatis lateri, adde tertium, & fiet secundus & tertius minuti primo æquales quarto, quod erat propositum.

5. *Ex quatuor proportionalium logarithmis aggregatum mediorum (secundi, scilicet, & tertij) æquatur aggregato extremorum, primi videlicet, & quarti.*

Per prop. 4. præcedentem, secundus & tertius minuti primo erant æquales quarto: vtrique æqualitatis lateri adde primum, & fiet secundus, plus tertio æqualis quarto, plus primo, quod demonstrandum erat.

6. *Ex quatuor continuè proportionalium logarithmis triplum alterutrius mediorum æquatur aggregato extremi remoti, & dupli vicini.*

Per secundam prop. duplum secundi seu medij minutum primo est æquale tertio: & per tertiam prop. duplum, huius, quod est, quadruplum secundi minutum duplo primi, æquabitur aggregato suorum extremorum, videlicet quarto plus secundo.



cundo. Iam si ab utroque æqualitatis latere subduxeris secundum, fiet triplum secundi minutum duplo primi æquale quarto: huius rursus æqualitatis lateribus adde duplum primi, & exurget triplum secundi æquale quarto plus primi duplo: quod probandum suscepimus.

## AD MONITIO.

Hæc usque logarithmorum genesin & symptomata explicauimus: quo verò calculo, quæue logistica methodo habeantur, hoc loco explicandum foret. Sed quia ipsum canonem integrum, eiusque logarithmos omnes cum suis finibus ad singulas quadrantis minutias primas exhibemus, ideo in tempus magis idoneum doctrinam constructionis logarithmorum transilientes, ad eorum usum properamus, ut prælibatis prius vsu, & rei utilitate, cætera aut magis placeant post hac edenda, aut minus saltem displiceant silentio sepulta. Præstolor enim eruditorum de his iudicium & censuram, priusquam cætera in lucem temerè prolata liuidorum detractationi exponantur.

DESCRIPTIONEM COMPLECTENS  
tabulæ logarithmorum, & septem eius  
columnarum.

## CAP. III.

## Sectio I.

- P**rima columna est expressè arcuum ab 0. in 45. Grad. crescentium: & subintelligitur esse etiam suorum ad semicirculum reliquorum.
2. Septima autem columna est arcuum à quadrante in 45. gradum decrecentium: & subintelligitur esse etiam suorum ad semicirculum reliquorum.
3. Unde alterius columna arcus sunt arcuum alterius è regione respondentium complementa.

4. Atque

4. Atque in prima exprimitur omnia trianguli rectilinei rectanguli angulus acutus minor.
5. In septima autem ei è regione collocatur eiusdem rectanguli angulus acutus minor.
6. In secunda columna sunt sinus arcuum prima columna.
7. Suntque hi crux minimi subiendens minorem angulum rectanguli, cuius basis, seu hypotenusa est sinus totus.
8. In sexta columna sunt sinus arcuum septima columna.
9. Suntque hi crux maius subiendens maiorem angulum eiusdem rectanguli, cuius scilicet hypotenusa est sinus totus.
10. Unde omni triangulo rectilineo rectangulo fit equiangulum & simile ex sinu toto, & sinu secunda columna, & sinu sexta ei è regione respondente.
11. Tertia columna continet Logarithmos arcuum, & sinuum sinistrorum.
12. Qui sunt Logarithmi proportionis cruris minoris rectanguli ad eiusdem hypotenusam.
13. Itemque hi sunt arcuum, & sinuum dextrorum Logarithmi complementorum, quos antilogarithmos appellamus.
14. Quinta columna continet Logarithmos arcuum, & sinuum dextrorum.
15. Qui sunt logarithmi proportionis cruris maioris rectanguli ad eiusdem hypotenusam.
16. Itemque hi sunt arcuum & sinuum sinistrorum antilogarithmi, seu logarithmi complementorum.
17. Quarta denique seu media columna continet differentias inter logarithmos tertia columna, & quinta. Unda duplex est hec columna, Abundans & defectiva.
18. Abundantes, sunt differentia, qua oriuntur ex subtractione logarithmorum quinta à logarithmis tertia.
19. Defectivæ verò, sunt differentia orta ex subtractione logarithmarum tertia à logarithmis quinta: quæ ideo sunt minores nihilo.
20. Differentia abundantes discuntur differentiales numeri, arcuum sinistrorum.
21. Suntque logarithmi proportionis minoris cruris rectanguli ad eiusdem crux maius.



22. Itemque sunt Logarithmi secundorum, siue tangentium arcuum sinistrorum.
23. Differentiæ autem defectivæ dicuntur numeri differentiales arcuum dextrorum.
24. Suique Logarithmi proportionis maioris cruris rectanguli ad eiusdem cruris minus.
25. Itemque sunt Logarithmi secundorum, siue tangentium arcuum dextrorum.
26. Omnis etiam arcus sinister, eiusque ad semicirculum reliquus, dicitur arcus complementi arcuum, sinuum, & Logarithmorum dextrorum, atque differentialium defectivorum.
27. Et contra, omnis arcus dexter, eiusque ad semicirculum reliquus, dicitur arcus complementi arcuum, sinuum, & Logarithmorum sinistrorum, atque differentialium abscissantium.

## ADMONITIONES.

28. **H**ic notandum est, si Logarithmos tertie columnæ defectivos feceris (proposito scilicet — signo,) fieri Logarithmi hypotenusarum, siue secantium arcuum dextrorum septimæ columnæ.
29. Et hi etiam fieri Logarithmi proportionis hypotenusa rectanguli ad eiusdem cruris minus.
30. Et si Logarithmos quintæ columnæ defectivos feceris, fieri Logarithmi hypotenusarum, siue secantium arcuum sinistrorum primæ columnæ.
31. Fient etiam hi Logarithmi proportionis hypotenusa rectanguli ad eiusdem cruris maius. Verum quia ad rectilincorum scientiam comparandam, soli sinus, eorumque arcus, & logarithmi cum differentialibus: ad Sphericorum autem, spresis sinibus, soli arcus, & eorum logarithmi, & differentiales sufficiunt: ideo hypotenusarum & secundorum tabula exclusimus: sicuti & sinus ipsos in Sphericis negligi volumus. Ostendimus tamen obiter te posse (si libuerit) eis omnibus suis expedite in rectilineis uti, in Sphericis verò minime:

CAP.

## DE VSV TABVLÆ ET NVMERORVM EIVS.

## CAP. IV.

## Sectio I.

**S**inum, tangentium, & secantium præcisè in tabulis suis repertorum, Logarithmos non minus præcisè dare.

Per sect. 11, & 14. cap. 3. reperto sinu dato in secunda, aut septima columna nostræ tabulæ, reperietur eius Logarithmus in eiusdem lineæ tertiæ vel quinta columna. Habentur igitur sic exactè sinuum tabulatorum logarithmi. Tangentium autem & secantium numeris in suis tabulis repertis habentur arcus. Ex arcubus verò cognitis nostra tabula exhibet tangentium logarithmos seu differentiales cum signis suis in media columna per sect. 22. & 25. Et secantium logarithmos reciprocè in tertiæ & quinta columna, præposito tamen his — signo per sect. 28. & 30. Habentur igitur sinuum, tangentium, & secantium tabulatorum logarithmi.

*Exempla sinuum.*

**S**inus 6946584. Logarithmum quæro. Sinum illum præcisè reperio in secunda columna respondentem arcui 44. Gr. 0. m. & in eadem lineæ tertiæ columnæ addat illi 3643349. suus logarithmus, quem quæsiui. Item sinus 7213574. quæratetur logarithmus. Sinus hic inuenietur respondens arcui 46. Gr. 10. m. & ei vicinus 3266204. logarithmus eius quæsitus.

*Exempla tangentium.*

**Q**uæratetur tangentis 2186448. logarithmus. Huic tangenti in sua tabula respondet arcus 12. Gr. 20. m. & huic arcui in media columna tabulæ nostræ respondet logarithmus, seu differentialis abundans 15203064. quæsitus. Item si tangentis 45736291. logarithmum quæsiueris, offendes in tabula tangentium eius arcum 77. Gr. 40. m. huiusque arcus in tabula nostra differentialem eandem, defectiuam tamen, scilicet — 15203064.

*Exem-*

*Exempla secantium.*

**S**ecanti 18118009. respondet in tabula secantium arcus 56. Gr. 30. m. & huic arcui in tabula nostra conuenit reciproce defectius — 5943212. logarithmus secantis 18118009. superscripti. Sic secantis 13118337. inuenies logarithmum — 2714255. & secantis 13960592. offendes logarithmum — 3336533.

2. *Numerorum datorum, & in tabulis sinuum, tangentium, & secantium non reperiendorum, logarithmos aestimare.*

Numerum dato simillimum, siue is fuerit dati decuplus, centuplus, millecuplus, 10000<sup>plus</sup>, 100000<sup>plus</sup>, aut 1000000<sup>plus</sup>, quare in secunda, aut sexta columna tabulae nostrae, aut si mauis, in tabulis tangentium, aut secantium: & huius arcum nota: eius enim logarithmus è tabula nostra elicitus, est quem quæris: mente tamen referuando, aut memoriae gratia notis exprimendo numerum locorum, seu figurarum multiplicitaris. Vt si quæratür logarithmus numeri 137. in tabulis non reperi: reperies inter sinus numeros 14544. 136714. & 1371564. & inter tangentibus 13705046. inter secantes verò numerum 13705048. qui est omnium dato simillimus, dummodò eius vltimæ vel dextimæ quinque figuræ deleri subintelligantur: huius ergo secantis 13705048. & sui arcus 43. Gr. 8. m. logarithmus (per præced. aut per sect. 28. & 30. cap. 3.) quæratür, & inuenietür — 3150332. qui pro logarithmo dati numeri 137. etiam habetur: recordando tamen vltimas quinque figuras abscindendas esse, aut memoriae gratia expressè hoc modo signandas — 3150332. — 00000. Similiter si per tangentem 13705046. superius expressum quæsiueris logarithmum numeri 137. ex tangentis illius arcu 53. Gr. 53. m. inuenietür (per sect. 25.) in media columna — 3151790. logarithmus illius tangentis 13705046. qui quia excedit 137. datum quinque locis seu figuris, ideo — 3151790. — 00000. erit logarithmus numeri dati 137. Tanto tamen minus exactus est hic logarithmus, quanto magis 13705046. est dissimilis numero 13700000. seu centies millecuplo dati: sed hic error partes <sup>5046</sup> unitatis

non exuperat. Si tandem per finem superscriptum  
 1371564. quæsineris logarithmum dati 137. is (per hanc,  
 & 11. sect. cap. 3.) deprehendetur esse 19866327—0000.  
 Nec secus operandum erit signo † quando numerus fi-  
 gurarum datæ quantitatis excedit numerum figura-  
 rum sinus ei similium, quod raro contingit: ut, si quæ-  
 ratur numeri seu discretæ quantitatis 232702. logarith-  
 mus, inuenies in tabula sinum 23271. ei omnium similli-  
 mum, sed vnica deest huic figura. Huius ergo logarithmo  
 tabularo (per sect. 11. cap. 3.) reperto, qui est 60631284.  
 adiciatur vnica cyphra signo † interposito, & fiet  
 60631284†0. pro logarithmo numeri 232702. quæsito.  
 Sed modus logarithmos æstimandi omnium optimus est,  
 quo primò creati sunt: de quo alibi.

3. *Vnde ut superiore prima sectione logarithmi simplices, & puri  
 exhibentur: ita hac precedente appositi cyphris impuri emergunt.*
4. *Similium signorum logarithmos addere, est aggregatum utrius-  
 que cum signo communi exhibere.*

Ut ex additione — 56312. ad — 73495. prouenient  
 — 129807. Itemque addito 4216. ad † 5392. producun-  
 tur 9608. Sic 3219 — 00. ad 4360 — 000. faciunt 7579  
 — 00000.

5. *Dissimilium signorum logarithmos addere, est differentiam eo-  
 rum cum signo maioris numeri exhibere.*

Ut ex additione — 210. ad 332. produciuntur † 122.  
 Item ex additione — 210. ad 192. produciuntur — 18.  
 Sic — 210. † 000. ad 332 — 00. sunt 122 † 0. Item —  
 210 — 000. ad 192 † 00. sunt — 18 — 0.

6. *Duorum logarithmorum, hic illius defectiuus, ille autem huius  
 abundans propriè dicitur: cum & numerum, & cyphras communes  
 seu eosdem: signa uerò omnia † & — penitus contraria habeant.*

Ut abundantis 56312. defectiuus est — 56312. Item  
 abundantis 56312 — 00. defectiuus est — 56312 † 00.  
 Sic abundantis 56312 † 00. defectiuus est — 56312 — 00.

7. *Abundantem subtrahere, est eius defectiuum addere.*

Ut subtrahere abundantem 56312. ex — 73495. idem  
 erit, quod addere illius defectiuum, qui (per 6.) est —

56312.

56312. ad eundem — 73495. fientque (per 4. præmissam)  
 — 129807. Sic subtrahere 56312 † 00. ex — 73495  
 — 000. est idem quod addere — 56312 † 00. ad —  
 73495 — 000. fiantque (per 4. & 5. præcedentes) —  
 129807 — 00000.

8. *Defectuum subtrahere est eius abundantem addere.*

Vt subtrahere defectuum — 4216. ex † 5392. est idem  
 quod addere 4216. ad 5392. & (per 4.) producere 9608.  
 Sic idem est subtrahere — 4216 † 00. ex 5392 † 0. quod  
 addere 4216 — ad 5392 † 0. & producere 9608 — 0.

9. *Logarithmum numero-saum augere vel minuire saluo valore  
 pristino, est ad illum addere, aut ab eo subtrahere quemuis ex loga-  
 rithmis sequentibus, scilicet 23025842 † 0. vel 46051684 † 00. vel  
 69077527 † 000. vel 92103369 † 0000. vel 115129211 † 00000.  
 nihil prorsus significantibus.*

Vi sit logarithmus 39156 — 0. cui si addideris illorum  
 quemuis, vt exempli gratia, 23025842 † 0. fiet inde  
 23064998. maior numero, valore autem prorsus idem qui  
 39156 — 0. Namque huius 39156 — 0. logarithmi,  
 quantitas seu valor numeralis (per 12. & 13. sect. seq. huius)  
 est 9960920. à quibus demc vnicam figuram vltimam  
 prout — 0. norat, & fiet 996092. Illius autem logarithmi  
 23064998. valor numeralis (per seq. sect. 12. & 13. huius)  
 est etiam 996092. idem, qui prius.

#### *Exemplum minutionis.*

**S**It Logarithmus 25451769. minuendus, à quo si sub-  
 duxeris 23025842 † 0. relinquitur 2425927 — 0.  
 eiusdem valoris, cuius prior hic 25451769. Nam simplicis  
 & puri logarithmi 2425927. valor est decuplus valoris  
 vtriusvis eorum. Sunt ergo eorum valores inuicem æqua-  
 les. Nihil enim aliud significat additio logarithmi  
 23025842 † 0. quam quod valor numeri cui additur, sit  
 decupartiendus, & huic decimæ parti cyphra vnica sit ad-  
 jicienda: subtractio verò eiusdem significat valorem lo-  
 garithmi à quo subtrahitur decuplari, & ab hoc decuplo

cyphram vnicam abiici: remanet itaque in utrâque pristinus valor. Sic 46051684 † 00. additus significat ad centesimam partem valoris duas cyphras adici: & subtractus, quod à centuplo duæ cyphræ reiciantur: & sic de reliquis suprà expressis.

10. Si itaque ad logarithmum minus aliquod cyphris addideris, aut à logarithmo aucto cyphris subtraxeris aliquem ex logarithmis superscriptis totidem cyphrarum, producetur ex impuro logarithmus purus eiusdem valoris.

Vt in superiore primo exemplo sit logarithmus impurus 39156 — o. purgandus à cyphra sua & — signo, adde ergo illi 23025842 † 0, fiet inde, vt supra 23064998. logarithmus purus pristini valoris. Sic à logarithmo 63584468 † 00. impuro si subtraxeris 46051684 † 00. totidem scilicet cyphrarum, relinquetur logarithmus 17532784. purus, & eiusdem valoris, cuius prior ille impurus.

11. Si ad logarithmum numero defectuum addideris, aliquem ex supradictis logarithmis nona sectionis numero maiorem, proveniet logarithmus eiusdem valoris numero abundans.

Vt ad logarithmum — 28595270 — 0000. adde quemvis ex numeris nonæ sectionis numero maiorem. v. g. 46051684 † 00. & fiet inde 17456414 — 00. eiusdem valoris, & numero abundans.

12. Logarithmorum in tabula nostra numero-tenus inventorum sinus, tangentes, secantes seu numerales valores quoscunque exhibere poteris, per cap. 3. sect. 11. 14. 22. 25. 28. 30. sine fini puri, siue impuri.

Vt logarithmo 36. graduum & 40. minutorum, qui est 5155724. in tertia columna, respondet suus sinus 5971586. in secunda: & eius defectiuo — 5155724. respondet in tabula secantium 16745970. secans 53. Gr. 20. m. Item logarithmo differentiali 2950794. in quarta columna, respondet tangens (in sua tabula) 7444724 & eius defectiuo 2950794. respondet tangens 13432331. graduum scilicet, 53. & 20. minur. Sic logarithmi 2204930. in quinta columna numeralis valor est in sexta columna 8021232. sinus scilicet gr. 53. & 20. m. & eiusdem defectiuo scilicet —



2104930. numeralis valor est secans 12466913. conueniens gradibus 36.& 40.min.

*Exemplum impurorum.*

**S**It logarithmi impuri 97796 — 0. inquirendus valor. Huic numero tenus respondet in tabula nostra sinus 990268. à quo aufer dextimam figuram ( prout — 0. indicat ) & fient 990268. valor logarithmi 97796 — 0. quæsitus. Sic logarithmi 25451769† 00. valor est 78459100. quia logarithmo 25451769. puro responder in tabula nostra sinus 784591. Item logarithmi — 349136 — 00. in quarta columna, apud gradum 46. reperi, valor erit 103551. quia tangens 46. graduum est 10355302. Sic logarithmi — 6350305 — 00. in tertia columna apud gradum 32. reperi, valor est 188708, quia secans complementi 32. graduum, scilicet 58. graduum, est 18870800. cuius duæ ultimæ & dextimæ figuræ 00. delendæ sunt propter — 00. annexa logarithmo.

13. *Logarithmorum datorum, in tabula nostra non reperiendorum numeralis valores æstimare.*

Ad vulgares Geodesias sufficit plerumque, logarithmi tabulati propinquioris dato, numeralem valorem pro dati accipere: verum si propius ad metam accedere desideras, logarithmum datum per nonam huius numero tenus auge, vel minue saluo valore pristino, donec aut in tabula reperiatur, aut alicui tabulato satis similis deuenierit, & huius logarithmi valor per præmissam inuentus, est quem quæris, vt exempli gratia, quæratür valör huius logarithmi 23149721† 0. cui in tabula non reperitur similis vel satis propinquus. verum si ab illo subduxeris 23025842† 0. relinquetur 123879. cui sub 81. gradu reperietur satis propinquus & similis 123881. cuius sinus 9876883. per præmissam inuentus, est valor oblati logarithmi 23149721† 0. quæsitus.

## ADMONITIO.

**P**RO hac sectione, & secunda huius monitum volumus, numerorum datorum logarithmos, & contra logarithmorum datorum numerales valores (ubi non reperiuntur in tabula) omnium accuratissime exhiberi per modum ipsum quo creantur, aut resolvuntur logarithmi, qui est, ut à sinu dato per media Geometricè proportionalia descendas, donec in proximè minorem sinum tabulatum perueneris: similiter ab huius logarithmo tabulato descendas etiam per totidem media Arithmetica congrua & horum ultimus erit illorum primi logarithmus: & contra per resolutionem, ut à logarithmo dato per media Arithmetica in logarithmum tabulatum proximè minorem descendas, & ab huius valore tabulato similiter etiam descendas per totidem media Geometrica & congrua: & horum ultimus erit numeralis valor illorum logarithmorum primi. Verùm quæ æqui-differentia Arithmetica cuique continuatæ proportioni Geometricæ conveniat & sit congrua, exquirere non est mediocris ingenij. Quare de his (Deo aspirante) ubi de logarithmis condendis & creandis agetur, amplius aliquando differemus.

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DE AMPLISSIMO LOGARITHMORUM  
vfu, & expedita per eos praxi.

## CAP. V.

## Problema I.

**E**X trium proportionalium Logarithmis, dato logarithmò medio & alio extremo, eligendum extremum, eiusve proportionalem, vel arithmetice, vel geometricè duplicationem & subtractionem dare.

Quam



Quum per secundam prop. cap. 2. duplum medij (scilicet logarithmi) minutum altero extremorum æquetur reliquo, ideo à duplo medij logarithmi dati aufer logarithmum extremi datum, & relinquetur logarithmus extremi quæsitus: cui in tertia, quarta, aut quinta columna tabulæ inuentæ responder arcus in prima & septima: sinus autem in secunda, aut sexta: & sui secantes aut tangentes in tabulis suis per cap. 3. sect. 1. 2. 6. 8. 11. 14. 12. 25. 18. 30. pro extremo quæsito habentur.

*Exemplum.*

**D**Entur 10000000. primū proportionale, & 7071068. secundum, quærat<sup>r</sup>ur tertium. Id vulgò exquiritur medium in se quadratè multiplicando, & hoc quadratum per primum diuidendo. Sed nos facilius medij logarithmum 3465735. duplando, & ab hoc duplo, quod est 6931470. logarithmum primi (qui est 0) auferendo: & ita restat 6931470. logarithmus quæsitus: cuius arcum 30. graduum, & sinum 5000000. (scilicet proportionale quæsitum) iuxta eum inuenies. Sunt ergo 10000000. 7071068. 5000000. tria proportionalia, quorum vltimum sola duplicatione, & subtractione acquisiuimus, quod polliceri sumus. Item duo proportionalia 10562556. primum, & 7660445. secundum, aut saltem eorum logarithmi — 547302. & 2665149. dentur. Tertium sic habebis. Ab huius duplo 5330398. aufer — 547302. & (per 8. sect. cap. 4.) producit<sup>r</sup>ur logarithmus 5877600. 33. grad. & 45. min. cuius sinus 5555702. est tertiu<sup>m</sup> proportionale quæsitū.

**Problema 2.**

*Ex trium proportionalium logarithmis, datis logarithmis extremis, medium, eiusque proportionale, & arcum per unicam additionem & bipartitionem dare.*

Quum per sect. 3. cap. 2. duplum logarithmū medij æquetur aggregato extremorum, ideo extremorum logarithmos adde: productum bipartire, & emerget logarithmus medij: atque inde medium & medij arcus innotescit in columnis, & per sectiones, vt supra.

**D**

*Exem*

*Exempli gratia.*

Dentur extrema  $10000000$ . &  $5000000$ . quadratur medium. Id vulgò acquiritur multiplicando data illa invicem, & producti radicem quadratam extrahendo. Verum nos sic facilius. Datos extremorum logarithmos,  $0$ . primi, &  $6931470$ . ultimi adsumimus, & aggregatum  $6931470$ . bipartimur, fietque  $3465735$ . optatus medij logarithmus. Unde ipsum medium  $7071068$ , & eius arcus  $45$ . Gr. ratione supradicta habentur. Item sint extrema data  $10562556$ . &  $555702$ . eorum logarithmi —  $547302$ . &  $5877600$ . Horum additorum summa est  $5330298$ . per sect. 5. cap. 4. quam bipartimur, & fit  $2665149$ . logarithmus, & eius arcus  $50$ . graduum: Et sinus, seu medium proportionale quæsitum est  $7560445$ . sola additione, & bipartitione inventum.

### Problema 3.

*Ex quatuor proportionalium logarithmis, datis tribus, eorumque arcubus invenire quartum logarithmum, eiusque sinum, & arcum per unicam additionem, & subtractionem.*

In hoc problemate quæsitum semper pro quarto statumimus, ita ut datorum primum se habeat ad secundum, ut tertium ad quæsitum. Quumque ita constitutorum aggregatum ex logarithmis secundi & tertij minus logarithmo primi æquetur quarti logarithmo per 4. sect. cap. 2. Ideo logarithmos secundi & tertij adde, & hinc aufer logarithmum primi, & proveniet logarithmus quartum quæsitum: & inde ipsum quartum, & eius arcus.

*Exempli gratia.*

Sit ut  $7667445$ . ad  $9843078$ . ita  $5000000$ . ad quartum. quod quærimus. Hoc vulgus acquirit dicendo secundum in tertium, & diuidendo per primum. Tu autem sic facilius logarithmos secundi  $153088$ . & tertij  $6931469$ . adde, fiet  $7084557$ . à quo auferes logarithmum primi, qui est  $2665149$ , & relinquetur  $4419408$ . logarithmus quartum: cuius sinus  $6427876$ . est ipsam quartum desideratum, & eius arcus est  $40$ . graduum. Idem proveniet si (spretis sinibus

bus) solum darentur tres sui arcus 50. Gr. 80. Gr. & 30. Gr. Namque ex logarithmis arcuum 80. Gr. & 30. Gr. ablato logarithmo 50. Gr. remanebit logarithmus 40. Gr. Et ita ipse arcus 40. Gr. innotescet absque sinibus, & sine multiplicatione aut diuisione, prout initio polliciti sumus.

*Aliud exemplum.*

**S**It ut tangens seu secundus numerus 43. Gr. ad sinum 57. Gr. ita secundus seu tangens 35. Gr. ad sinum quartum tacitum. cuius arcum neglectis & spretis tam sinibus quam tangentibus, sic inueniemus. Logarithmum differentialem 35. Gr. scilicet 3563784. in media columna inuentum ad logarithmum 57. Gr. videlicet 1759372 in quinta columna locatum addimus: à producto videlicet 5323156. differentialem 43. Gr. qui est 693698. subducimus, & relinquitur 4624458. Logarithmus quarti (sinus scilicet,) quo in tertia columna per 11. lect. cap. 3. reperto, reperies juxta eum in prima columna 39. Grad. 2. minut. ferè qui est arcus quasi quarti proportionalis seu sinus spreti. Hac ratione proportionalium arcus, absque eorum sinibus, tangentibus, secantibus, aut proportionalibus quibuscunque acquiruntur.

Quod certè compendium ad triangulorum planorum angulos dimetiendos, & ad vniuersam sphericorum Trigonometriam conducit plurimum: ut suo loco patebit.

**Problema 4.**

*Quatuor continuè proportionalium datis extremis eorumque arcibus, mediorum quodvis, eorumque arcuum quemus inuenire. inducta simplici tripartitione pro ardua cubica radice extractione.*

Quum in horum Logarithmis, triplum cuiusque medij æquetur aggregato extremi remoti & dupli vicini, per prop. 6. cap. 2. Ideo duplum logarithmi extremi alterutrius ad logarithmum extremi reliqui adde, & productum tripartire, & proueniet logarithmus medij priori extremo proximi, & eodem modo alteram medium. Ut exempli gratia: Sint extrema, primum 4029246. vltimum vero

10562556. Quæruntur media, quæ absque extractione radicis cubica sic inuenies. Datorum logarithmi sunt 9090051. & — 547302. ad illius duplum 18180102. adde hunc, & fiet 17632800. qui tripartitus producit 5877600. Logarithmum, cuius sinus 5555702, est prius mediū quæsitum. Item simili modo ad huius — 547302. duplum quod est — 1094604. adde illum 9090051, & produceatur 7995447. qui tripartitus producit 2665149. Logarithmum, cuius sinus 7560445. est posterius medium etiam quæsitum. Quatuor itaque proportionalia continua sunt 4029246. 5555702. 7660445. & 10562556.

*Aliud exemplum.*

**S**int extrema data 14142135. & 5000000 illius in tabula secantium inuenti logarithmus in tabula nostra est — 3465735. huius verò 5000000. logarithmus est 6931470. cuius duplo 13862940. adde — 3465735. fiet 10397205. quem tripartire, & fit † 3465735. logarithmus medij proportionalis minori extremo 5000000. proximi, quod est 7071068. Sic duplo — 3465735. quod est — 6931470. adde † 6931470. & fiet inde 0. seu nihil, quod tripartitum etiam reddit 0. cuius sinus & valor est 10000000. pro reliquo & maiore medio. Quatuor itaque hæc continuè proportionalia sunt 12142135. 10000000. 7071068. 5000000.

### CONCLUSIO.

**E**x his prælibatis iudicent eruditi quantum emolumenti adferent illis logarithmi: quandoquidem per eorum additionem multiplicatiam, per subtractionem diuisionem, per bipartitionem extractionem quadratam, per tripartitionem cubicam, & per alias faciles prosthaphæreses omnia grauiora calculi opera euuantur: cuius rei specimen generale hoc priore libro exhibuimus. Sequentem autem de eorundem proprio & particulari usu in nobili illa Geometria specie, qua Trigonometria dicitur, tractaturi sumus.

FINIS PRIORIS LIBRI.



LIBER SECVNDVS  
DE CANONIS  
MIRIFICI LOGARITHMORVM  
PRÆCLARO VSV IN  
Trigonometria.

C A P. I.

**Q**VVM Geometria sit ars benè metiendi, Dimensio sit magnitudinum propositatum, magnitudines figuram ( potentia saltem ) constituent, figura sit triangulum, aut triangulatum: Triangulatum verò compositum sit ex triangulis, quibus suisque, partibus mensuratis, mensurabitur & illud, illiusque partes omnes. Certum igitur est ex triangulorum doctrinâ omnis Geometricæ quæstionis Solutionem Logisticam pendere.

Triangulum aut rectilineum est, aut Sphericum.

De Rectilineis, prop. 1.

**R**ectilinei tres anguli æquantur duobus rectis.

Vnde duobus datis, aufer eorum aggregatum ex 180 gradibus, & proueniet tertius. Item vnico ex 180. gradibus ablato, restat reliquorum duorum aggregatum.

Rectilineum aut rectangulum est, obliquangulum.

In rectangulis crura vocamus, quæ rectum angulum ambiunt: hypotenusam, quæ subtendit.

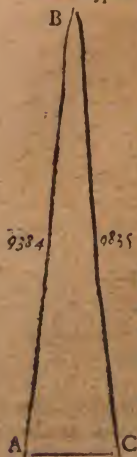
### Propositio 2.

*In rectangulo Logarithmus cruris æquatur aggregato ex Logarithmo anguli ei oppositi, & Logarithmo hypotenuse.*

Quum ex Trigonometriæ principiis pateat, alterutrum-uis cruris se habere ad sinum anguli ei oppositi, ut hypotenusa ad sinum totum: & ( per prop. 5. cap. 2. lib. 1. ) horum quatuor proportionalium logarithmi secundi & tertij, æquantur logarithmis primi & quarti: quarti autem logarithmus sit 0, seu nihil ( per collarium 6. def. cap. 1. lib. 1. ) Ideo ( ut supra ) logarithmus cruris æquatur aggregato ex logarithmo anguli quem subtendit, & logarithmo hypotenuse.

### Corollarium.

*Unde hypotenusa, cruris, & anguli quem subtendit, duobus quibuscunque datis, tertium, atque inde in reliqua omnes rectanguli partes innotescunt.*



Quia enim hæc tria cum sinu tota, constituunt quatuor proportionalia, certum est eorum quodvis quarto loco posse constitui, & per 3. probl. cap. 5. lib. 1. acquiri.

Ut trianguli oblati A. B. C. in A rectanguli, detur hypotenusa B. C. 9385, cum ciue A B 9384. Quærantur anguli obliqui C. & B. Ex logarithmo igitur A. B. 635870 — 000. aufer logarithmum B. C. 634799 — 000. Super sunt 1071 logarithmus anguli C, cui in tabula respondent  $89 \frac{1}{8} \frac{13}{4}$  pro angulo C. & ex aduerso 0 g  $50 \frac{1}{4}$  pro eius complemento, angulo scilicet B.



Vice versa si detur angulus C, cum crure recti anguli A.B. & quærat<sup>r</sup> hypotenusa B.C.

Ex Logarithmo A. B. 635870 — 000 aufer Logarithmum anguli C. 1071, & prouenient 634799 — 000 Logarithmus B.C. 9385 hypotenusa quæsitæ.

Tertio si datis B.C., & angulo C. quærat<sup>r</sup> A B: adde Logarithmum B.C. 634799 — 000, ad 1071 Logarithmum anguli C., & producentur 635870 — 000 Logarithmus numeri 9384 cruri A. B. quæsito respondentis. Nec secus ipsum crus reliquum A. C. ex angulo B. (qui est complementum anguli C.) jam cognito habetur. Atque ita omnes huius rectanguli partes innotescunt.

### Propositio 3.

*In rectangulo logarithmus cuiusvis cruris, est æqualis aggregato ex differentiali oppositi anguli, & logarithmo reliqui cruris.*

Quum ex vulgari doctrina triangulorum constet, quod alterutrum crus se habeat ad tangentem sibi oppositi anguli, ut reliquum crus ad sinum totum: & quum (per prop. 5. cap. 2. lib. 1.) ex his quatuor proportionalibus logarithmi mediorum (id est, differentialis anguli, & logarithmus cruris eum ambientis) æquentur logarithmis cruris eandem subtendentis, & sinus totius (qui est nihil, seu 0.) ideo logarithmus cruris est æqualis aggregato, &c. ut supra.

### Corollarium.

*Vnde ex cruribus recti, & angulo alteri eorum opposito, duobus quibuscunque datis, tertium (per hanc,) atque proinde cetera omnes rectanguli partes (per præced.) innotescunt.*

Quandoquidem hæc tria cum sinu toto constituent quatuor proportionalia, certum est eorum quodvis quarto loco posse collocari, & per 3. probl. cap. 5. lib. 1. acquiri.

Ut præcedentis trianguli A B C, in A rectanguli datis cruribus AB, 9384. & AC, 137. Quærat<sup>r</sup> angul<sup>9</sup> B. Ex Logarithmo  
A C,



A C, 42924534—000. aufer 635870—000, Logarithmum A B. & prouenient 42288664, differentialis anguli B,  $0^{\circ} 50' 11''$ , quæ sit. Verum si dentur crus A C, 137: & angulus B.  $0^{\circ} 50' 11''$ , habebitur crus A B auferendo 42288664, differentialem anguli B. à Logarithmo A C. qui est 42924534 — 000. Inde enim proueniens 635870 — 000, est logarithmus numeri 9384. qui crus est A B. quæ situm. Tertiò datis crure A B, 9384. & angulo B,  $0^{\circ} 50' 11''$ : ut habeatur crus A C, adde 635870 — 000, Logarith. cruris A B. ad 42288664, differentialem anguli B. & prouenient 42924534 — 000, Logarithmus 137, cruris A C, quæ sit. Hypotenusa autem B C per præced. prop. habetur. Angulus etiam C, patet, quum sit complementum anguli B, jam cogniti. Et ita per hanc, & præmissam, ex latere quouis, & parte alia quouis rectanguli datis reliquæ omnes eius partes innotescunt.

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Completam ergo habes rectangulorum rectilineorum scientiam: sequitur obliquangulorum.

## DE TRIANGVLIS RECTILINEIS præsertim obliquangulis.

### CAP. II.

#### Propositio 4.

**I**N omni triangulo, aggregatum ex Logarithmis anguli cuiusvis, & lateris eum ambientis, æquatur aggregato ex logarithmis lateris, & anguli eis oppositorum.

Quia omnium laterum ad oppositorum angulorum finis eadem est ratio: & ita factum ex anguli cuiusvis sinu recto, & latere quouis eum ambiente, æquatur facto ex latere subtendente priorem angulum, & sinu anguli subtē-

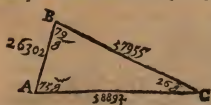


fi à priore latere. Ideo (per prop. 5. cap. 2. 1.) aggregatum  
ex Logarithmus &c. æquatur. vt supra.

### Corollarium.

Unde ex duobus angulis quibuscunque data speciei, & suis sub-  
tendentibus, si tria dantur, quatuor quodcunque, atque inde can-  
tera omnes trianguli partes inuolunt.

Horum enim quatuor proportionalium quodvis quæsitum po-  
test quarto loco constitui, & per 3. probl. ca. 5. lib. 1. inueniri.



Vt obliquanguli A.B.  
C detur A B 26302, & B  
C. 57955, & angulus C.  
26 graduum: Quæratu-  
que angulus A, qui sic  
habetur. Adde 5454707  
— 00 Logarithmū B C,

ad 8246889 logarithmum scilicet C 26 graduum, & fient  
13701596 — 00. Hinc aufer logarithmum A B, qui est  
13354921 — 00, restant 346675 logarithmus 75 graduum,  
& paulò plurius, anguli scilicet, A quæsitum, si A prædicatus  
acutus: alioqui 105  $\frac{1}{2}$  (per 1. & 2. sect. cap. 3. lib. 1.) si pronun-  
cietur obtusus.

Vice versa si detur angulus A jam 75 graduum, atque  
angulus C. & latus B C. vt supra: & quærat A B. adde  
5454707 — 00 logarithmum B C. ad 8246889 logarithmum  
anguli C, fient, vt supra. 13701596 — 00 à quibus au-  
fer 346675 logarithmum anguli A, prouenient 13354921  
— 00 logarithmus lateris A B, & numeri eius 26302  
quæsitum. Habitis jam angulis A. 75  $\frac{1}{2}$  & C. 26  $\frac{1}{2}$ , erit angu-  
lus B. 79 gr. per 1. huius. Ex quo jam habito, non secus æ-  
quiritur latus ei oppositum A C. 58892, quàm nuper itidē  
ex angulo C. inuoluit latus ei oppositum A B. Itaque jam  
patent omnes huius obliquanguli partes.

In obliquangulis crura vocamus, quæ angulum quemvis am-  
biunt: basim quæ subten dit.

### Propositio 3.

In obliquangulis, logarithmus aggregatus crurum subductus à  
E summa

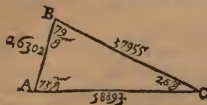
*Summa facta ex logarithmo differentia crurum, & differentialis semi-aggregati suorum oppositorum angulorum, relinquit differentialem semi-differentia eorundem.*

Quia, ut aggregatum crurum ad differentiam crurum, ita tangens semi-aggregati suorum oppositorum angulorum, se habet ad tangentem semi-differentia eorundem. Unde analoga sunt, & [per prop. 1. cap. 2. lib. 1.] eorundem differentia seu excessus sunt æquales. Necessariò igitur (per prop. 4. cap. 2. lib. 1.) concludimus ut supra.

### Corollarium.

*Vnde ex duobus cruribus, & angulo comprehenso, innotescunt (per hanc) anguli reliqui oppositi: atque inde (per præmissam) reliquum latus.*

Nam subducto logarithmo aggregati crurum, à summa facta ex logarithmo differentia crurum, & differentialis semi-aggregati oppositorum angulorum additis, proveniet differentialis semi-differentia eorundem angulorum: quâ semi-differentia addita ad semi-aggregatum dictam, proveniet angulus maior, & subtracta minor.



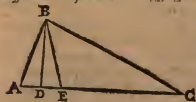
Ut repetiti superius obliqui anguli ABC dentur crura, A B. 26302, & B C. 57955, & angulus comprehensus B. 79 graduum. Quærantur autem reliqui anguli A.

& C. Aggregatum crurum A B. & B C est 84257, eiusque logarithmus est 24738819 — 0. differentia autem eorundem A B, & B C est 31653, eiusq; Logarithmi. est 34529210 — 0. Quumque B angulus detur 79  $\frac{1}{2}$  erit (per 1. huius) aggregatum angulorum A & C, graduum 101, semi-aggregatum verò 50  $\frac{1}{2}$  30, cuius differentialis est —1931766, quo ad 34529210 — 0 addito, fient 32597444 — 0. hinc ablatis 24738819 — provenient  $\frac{1}{2}$  7858625 differentialis graduum 24.30, qui sunt semi-differentia angulorum A & C oppositorum. Hanc ergo semi-differentiam  $\frac{1}{2}$  24.30 adde ad se

ad semi-aggregatum  $59\frac{1}{2}$ , fient  $75$  gradus, pro angulo A quæſitorum maiore, & ſubſtrahe eodem  $24\frac{1}{4}$  gradus ab eisdem  $50\frac{1}{2}$  gradibus, & relinquentur  $26$  gradus pro angulo B quæſitorum minore.

### Definitio.

*In obliquangulis vera baſis ſemper eſt vel aggregatum caſuum: & tunc differentia caſuum baſis alterna vocatur: vel vera baſis eſt differentia caſuum: & tunc aggregatum caſuum vocamus alternam.*



Ut trianguli ABC, caſus minor eſt A D: caſus maior eſt D C. Caſuum aggregatum A C eſt baſis vera. I. e. in hoc triangulo aufer caſum minorem A D, ſeu ei æqualem D E à caſu majore

D C, relinquetur differentia caſuum E C, quam baſim alternam vocamus. Contrà verò in triangulo E B C caſus minor eſt D E (cui æquatur D A.) Caſus maior eſt D C, & caſuum differentia E C eſt baſis vera. Caſuum autem aggregatum, ſcilicet A C, baſim alternam vocamus.

### Propoſitio 6.

*In obliquangulis ſumma logarithmorum aggregati & differentie crurum, eſt æqualis ſumme Logarithmorum baſium, vera, & alterna,*

Quia baſis vera ſe habet ad aggregatum crurum, ut differentia crurum ad baſim alternam: Ideo (per prop. 5. cap. 2. lib. 1.) neceſſariò concludimus, baſium logarithmos æquari logarithmis aggregati & differentie crurum, ut ſupra.

### Corollarium.

*Unde ex obliquangulo datorum laterum, ſunt duo reſt angula notorum hypotenularum cum altera cuiusque crure, quæ (per 2. huius) reliquis etiam omnes obliquanguli partes notas reddunt.*

Nam addito logarithmo aggregati crurum ad logarithmum differentie crurum, & hinc ablato logarithmo baſis veræ, proneniet logarithmus baſis alterne, per prop. 4. cap. 2. & probl. 3. cap. 5. lib. 1, Harum itaque baſium ſemi-ag-

gregatum est casus maior: semi-differentia verò casus minor, Vt superioris trianguli  $ABC$  dentur latera, videlicet crus  $AB$  26302, & crus  $BC$  57955, & basis  $AC$  58892, & quærantur cætera. Aggregatum eorum est 84257, eiusque logarithmus est 24738819 — 0. Differentia eorum est 31653, eiusque logarithmus est 34529210 — 0. Hos logarithmos adde, fient inde 59268029 — 00, à quibus aufer 1293461 — 00 logarithmum basis  $AC$ , restant 53974568 logarithmos numeri 45286 basis alternæ: quam ad veram adde, fient inde 104178, quorum dimidium est 52089,  $DC$ , casus maior. Eandem ab eadem aufer, fient inde 13606, quorum dimidium est 6803,  $AD$  casus minor.

Rectanguli itaque  $ADB$ . habitis jam, hypotenusa  $AB$ , & crure altero  $AD$ . atque rectanguli  $DBC$  habitis, hypotenusa  $BC$ , & crure  $DC$ , innotescunt (per 2. huius) anguli rectangulorum apud  $A$  &  $B$  &  $C$ , & per consequens omnes etiam obliquanguli oblati partes ex præmissis propalantur.

Nec secus agendum foret si darentur latera trianguli  $ECB$ , & cæteræ partes quærantur. Ex cruribus enim & basi vera  $EC$ , innotescit basis alterna  $AC$ . atque ex his uterque casus, & cætera, vt supra.

### CONCLUSIO.

**P**erfectam igitur & completam iam habes omnium triangulorum rectilincorum doctrinam, qua si aliquanulum operosa in Logarithmis rectarum variabilium inveniendis videatur: In motibus tamen planetarum computandis (in quibus scilicet eccentricitates orbium, elongationes Augium & apogæorum, epiciclorum diametri, & alia recta, eadem & invariabiles permanent) eorum logarithmi exactè semel notati, semper in posterum, sine ulla mutatione subservient, miranda certè facilitate, & certitudine.

Sequuntur iam Sphærica triangula, omnium difficillima, vt vulgò ab aliis traduntur, per Logarithmos tamen nostros, omnium facilissima.

## DE TRIANGVLIS SPHÆRICIS.

## CAP. III.

## Sententia I.

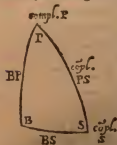
**I**N triangulis Sphæricis angulus omnium quadranti quantitate proximus, & latus eum subiendens dubia sunt, An eiusdem, an diuersa sint speciei, nisi id aut computus, aut hypothesis prœdat.

2. Duorum vero obliquiorum angulorum quilibet est eiusdem speciei, cuius est latus eum subiendens. Vnde alterius data, reliqui patet species.
3. Si trianguli angulus aliquis propinquior sit quadranti, quàm latus eum subiendens, erunt duo eius latera eiusdem speciei, & tertium quadrante minus.
4. Si verò trianguli latus aliquod propinquius sit quadranti, quàm eo subiensus angulus, erunt duo eius anguli eiusdem speciei, & tertius quadrante maior.
5. Triangulum Sphæricum aut est quadrantale, aut non.
6. Quadrantale est cuius aut latus, aut angulus aequatur quadranti. Vnde non rectanguli quadrantis scienciam æquè faciliè, ac rectanguli comparari posse, docemus.
7. Quadrantale triangulum aut est multiplex, aut simplex.
8. Multiplex quadrantale aut est trirectangulum, aut birectangulum.
9. Trirectangulum est cuius singula partes quadranti aquantur.
10. Vnde omne triangulum, cuius trium partium non oppositarum singule quadranti aquantur, Trirectangulum est.
11. Birectangulum est, cuius duo tantum anguli, & sua subiendens latera sigillatim quadranti aquantur.
12. In omni birectangulo angulus obliquus aequatur suo subiendenti lateri.
13. Omne Triangulum cuius pars aliqua aequatur quadranti, & angulus aliquis obliquus aequatur suo subiendenti, Birectangulum est.
14. Omne Triangulum habens duas quasennque partes sigillatim quadranti aequales, & tertiam inaequalem, Birectangulum est.
15. Cetera quadrantalia simplicia dicuntur.

## DE SIMPLICIBVS QVADRANTALIBVS.

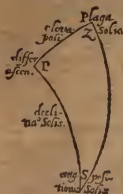
## CAP. IV.

1. **Q**uadrantale simplex est, cuius unica tantum pars quadranti aequatur, ceterae autem quinque partes sunt non quadrantes.
2. Harum quinque partium non quadrantium, Tres quae à recto angulo, seu quadrante latere, situ remotiores sunt, in sua complementa conuertimus, & reueto pristino ordine omnes quinque in circulare, seu pentagonalem situm statuimus, & circulares vocamus.



Sit primo triangulum BPS in B rectangulum. Eius quinque partes obliquae, seu non quadrantes, sunt haec. BP latus ambiens rectum. P angulus obliquus alter. PS latus subtendens rectum. S angulus reliquus obliquus. SB reliquum latus ambiens rectum. Pro quibus nos facilioris calculi gratia assumimus latus, BP ipsum : complementum anguli P. Complementum lateris PS, complementum anguli S, atque ipsum latus SB, & seruatō naturali situ has quinque partes ordine statuimus, ut à margine, & circulares vocamus.

Similiter sit secundò triangulum quadrantale simplex, non rectangulum (ex centris solis orientis, poli, & zenith factum) SPZ, in latere ZS quadrantale.



Eius quinque partes non quadrantes pristinæ sunt. Z angulus alter ambitus à latere quadrante. Latus PZ distantia poli à zenith. P angulus subtensus à quadrante. Latus PS distantia poli à Sole, & angulus denique S alter angulorum quos quadrans ambit. Pro quibus nos ad faciliorem computum nostrum assumimus, ipsum angulum Z, seu PZS, qui est arcus plagæ Solis à septentrione. Complementum PZ, quod est ipsa eleuatio poli:

Comple

Complementum anguli P, seu angeli Z P S, quod est differentia ascensionis, id est, differentia temporis ortus vel occasus Solis ab hora sexta. Complementum lateris P S quod est Solis declinatio: & angulum ipsum S seu P S Z, quem angulum positionis Solis, respectu scilicet poli & zenith, vocamus. Has quinque partes etiam circulari vel pentagono situ statuimus, ut à margine, & circulares vocamus. Nec



aliæ fient circulares partes superioris trianguli rectanguli B P S, si P polum, S solem, & B cardinalem borealem seu septentrionalē posuerit. Fient enim latus B P eleuatio poli, complementū P differentia ascensionalis, Complementum P S declinatio solis, complementum S angulus

positionis solis: ac denique B S plaga solis. Quæ sunt eadem prorsus circulares partes, quæ suprâ, & eodem situ leuorsum quo ille dextrorsum dispositæ. Et ita in omnibus quadrantalibus tam rectangulis, quàm non rectangulis.

### Corollarium.

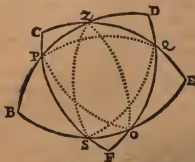
3. Hinc fit quod plurima sint triangula in partibus suis naturalibus haud conformia, quæ in partibus his circularibus prorsus conueniunt, & hac nostra circularium methodo resolvuntur.

Ut satis lucidè apparet in duobus superioribus triangulis B P S, & P Z S coniunctis. In quibus omnes naturales partes (præter P S & B S huius, & P S & P Z S illius) prorsus differunt: circulares verò partes omnes (ut suprâ dictum est) conueniunt.

4. Hac circularium partium uniformitas manifestissimè patet in  
rectan

rectangulis factis in superficie globi ex quinque circulis magnis, quorum primus secet secundum, secundus tertium, tertius quartum, quartus quintum, quintus denique primum ad rectos angulos: reliqua vero sectiones omnes ad angulos obliquos fient.

Exempli gratia: Meridianus regionis D B, secat horizontem B E in puncto B. Horizon B E secat circulum E C, qui solem ambit (id est, qui circa solem tanquam polum ducitur) in puncto E. Circulus E C, qui solem ambit, secat meridianum



solis C F in puncto C. Meridianus solis C F æquatorem F D in puncto F: & tandem æquator F D secat meridianum regionis D B in puncto D. Et omnes hæc quinque sectiones in punctis. B. E. C. F. D orthogonaliter & ad rectos angulos fiunt: factis cæteris sectionibus

in punctis Z. P. S. O. Q., ad angulos obliquos. Fientque ex his sectionibus rectangula quinque P B S, S F O, O E Q, Q D Z, & Z C P, quorum quamvis partes naturales differant, & in singulis triangulis varientur, circulares tamen quinque partes eadem sunt, quæ supra, absque ullo discrimine.

5. Eadem circularium partium uniformitas, patet etiam in quadrantalibus non rectangulis factis in superficie globi ex quinque punctis, quorum primus distet à secundo, secundus à tertio, tertius à quarto, quartus à quinto, & quintus à primo distantibus & arcubus equalibus quadrantibus, alia vero punctorum distantia inæquales sint quadrantibus.

Vt in eodem præcedente schemate puncta, P à Q, Q ab S, S ab Z, Z ab O, atque O à P, distant spatiis quadrantibus æqualibus: at verò P ab Z, Z à Q, Q ab O, O ab S, & S à P, distant ab invicem arcubus non quadrantibus. Et fient ex his distantibus quadrantibus non rectangula quinque, P Z Q, Z Q O, Q O S, O S P, & S P Z: quorum quamvis naturales partes differant: partes tamen circulares eadem & immutabiles hinc permanent, quæ supra. Scilicet, eleuatio poli, differentia ascensionalis,



lis, declinatio solis, angulus positionis solis, & plaga solis: quæ omnibus superioribus triangulis ex æquo conveniunt, ac ceteris duntaxat solis, verum etiam omnibus triangulis quæ oriuntur ex intersectionibus cæteris horum decem arcuum ad integros circulos productorum: quæ, quia plurima & cõfusa sunt, missa hic facimus. Hac epitome satis est monuisse omnem cõfusionem naturalium partium, & suarum regularum, his pauc circularibus partibus & sua regula unica cuitari, ac tolli.

6. *Quinque circularium partium, tres semper in quæstionem cadunt, quarum due dantur, tertia quaeritur.*

7. *Atque harum trium una est intermedia, & due sunt extrema, quæ scilicet intermedia aut circumponuntur, aut opponuntur.*

Verbi gratia, Sint partes tres in quæstione propositæ hæ, plaga solis, elevatio poli, & differentia ascensionalis: quarum, elevatio poli pars intermedia dicitur, & reliquæ duæ extremæ ei vicinæ, aut circumpositæ vocantur: verum si tres partes in quæstionem cadentes forent, declinatio solis, elevatio poli, & angulus positionis solis, vocabitur (ut prius) elevatio poli intermedia: sed declinatio solis, & angulus positionis solis, extremæ à media remotæ, seu ei oppositæ dicentur: Par ratio est in reliquis quinque.

8. *Logarithmus intermedia æquatur differentialibus circumpositarum extremarum, seu antilogarithmus oppositarum extremarum.*

Hoc theorema probatur inductione omnium trium partium seu triplicitatum, quæ ex quinque circularibus partibus quadrantalibus prioris  $BPS$  rectanguli, constitui possunt, & in quæstionem cadere: posterioris autem non rectanguli  $PZS$  triplicitates omittimus, quia eius omnes partes circulares (ex 18, & 19, & 20 præmissis) eadem prorsus sunt quantitate, quæ prioris. Quinque ergo partium circularium rectanguli  $BPS$ , (quæ sunt  $BS$ , seu plaga solis orientis: complementum  $BSP$ , seu angulus positionis solis: complementum  $SP$ , seu declinatio solis: complementum  $SPB$ , seu differentia ascensionalis: &  $PB$ , seu elevatio poli) tres illæ quæ in quæstionem extremarum circumpositarum cadunt, sunt aut primò  $BS$ , complementum  $BSP$ , & complementum  $SP$ : aut secundò complementum  $BSP$ , complementum  $SP$ : & comple-

mentum  $SPB$ : aut tertio complementum  $SP$ , complementum  $SPB$ , &  $PB$ : aut quarto complementum  $SPB$ ,  $PB$ , &  $BS$ : aut quinto sunt  $PB$ ,  $BS$ , & complementum  $BSP$ .

Verum quia in omnibus his triplicitatibus, Tangens alterius extremæ est ad sinum rectum intermediæ, ut sinus totus ad tangentem reliquæ extremæ (pro ut ex vulgaribus demonstrationibus Trigonometriæ patet.) Ideo (per nostras demonstrationes prop. 5. cap. 2. lib. 1.) Logarithmi mediarum (qui sunt logarithmus solius intermediæ per corollarium 6. def. cap. 1. lib. 1.) æquantur logarithmis tangentium utriusque extremæ. Sed Logarithmi tangentium harum extremarum sunt differentiales earundem (ex sect. 22. & 25. cap. 3. lib. 1.) Logarithmus igitur solius intermediæ æquatur differentialibus circumpositarum extremarum, ut priore parte Theorematis asseruimus. Sequitur posterioris partis confirmatio.

Earundem ergo quinque partium circularium, tres illæ quæ in quæstionem extremarum intermediæ oppositarum cadunt, sunt aut primò  $PB$ , complementum  $BSP$ , & complementum  $SPB$ : aut secundò  $BS$ , complementum  $SP$ , &  $PB$ : aut tertio complementum  $BSP$ , complementum  $SPB$ , &  $BS$ : aut quarto complementum  $SP$ ,  $PB$ , & complementum  $BSP$ : aut quinto denique complementum  $SPB$ ,  $BS$ , & complementum  $SP$ .

Sed in omnibus his triplicitatibus seu quinque casibus, sinus rectus complementi alterius extremæ se habet ad sinum rectum intermediæ, ut sinus totus ad sinum rectum complementi reliquæ extremæ (quod fusiùs à Regiomontano, Copernico, Lansbergio, Pitiscò, & aliis demonstratur, quàm ut breui hac epitome repetendum sit) Ideo per nostras demonstrationes (prop. 5. cap. 2. lib. 1.) Logarithmi complementorum harum extremarum æquantur logarithmis mediarum, id est, (ut dictum est) logarithmo solius intermediæ. At Logarithmi complementorum harum extremarum oppositarum sunt eadem ipsarum partium antilogarithmi (ex def. sect. 13. & 16. cap. 3. lib. 1.) sequitur ergo in his casibus, quod logarithmus solius intermediæ æquetur antilogarithmis suarum extremarum oppositarum, ut asserit posterior theorema-

tus pars

tis pars. Totum itaque theorema constat. Præter hanc probationem per inductionem omnium casuum, qui occurrere possunt, potest idem theorema lucidè perspicui ex 19<sup>a</sup> & 20<sup>a</sup> præcedentibus, in quorum schemate, homologa circularium partium constitutio earundem analogiæ similitudinem arguit: ita ut quod de vna intermedia & suis extremis circumpositis, aut oppositis verè enuntiatur, de cæteris quatuor intermediis & suis extremis respectuè circumpositis, aut oppositis negari non possit.

### PORISMA GENERALE.

9. **H**inc sequitur in quadrantalibus simplicibus, quod ex duabus paribus quibuscunque datis tertia quævis innotescet. Semper enim aut intermedia queritur, & eius logarithmus habetur addendo differentiales circumpositarum extremarum datarum: aut altera extremarum queritur, & eius differentialis emergit ex subtractione differentialis reliquæ extremitatis data à Logarithmo intermedia nota: ut in quinque prioribus triplicitatibus reſt anguli præcedentis theorematum, & totidem non reſt anguli: aut intermedia queritur, & eius logarithmus provenit, addendo antilogarithmos oppositarum extremarum datarum: aut denique altera extremarum oppositarum queritur: & eius antilogarithmus ex subtractione antilogarithmi reliquæ extremitatis oppositæ data ex logarithmo intermedia nota habetur. Ut in quinque posterioribus casibus reſt anguli præcedentis theorematum, & totidem non reſt anguli. Horum autem Logarithmorum, antilogarithmorum, & differentialium iam inuenientium cuiuslibet respondet duo arcus diuersarum specierum. Ex specie igitur quaesiti arcus per secundam, tertiam, quartam huius, aut per hypothesin nota, ipse arcus verè innotescet.

Ut in priore exemplo septimæ, Tres quaestionis partes circulares sunt, plaga solis, eleuatio poli, & differentia ascensionalis, id est, In reſt angulo B P S. partes B S, P B. & complementum S P B: vel in non reſt angulo quadrantali P Z S, partes P Z S, complementum P Z, & complementum S P Z: quarum trium dentur extrema circumpositæ, scilicet plaga solis orientis B S, vel P Z S, 70 Gr. & differentia ascensionalis com.

plementum S P B, vel complementum S P Z, 16 Gr. 24, 27: & quærat intermedia pars P.B, vel complementum P Z, quæ est eleuatio poli. Addatur ergo differentialis 70. Gr., viz — 10106827 ad differentialem 16 gr. 24, 27. videlicet ad 12226180. & prouenient 2119353. Logarithmus 54. graduum pro eleuatione poli quæ sita.

### ADMONITIO.

**P**Ræter eleuationem poli hoc modo inuentam, habetur etiam secundò eadem præxi plaga solis ex eleuatione poli, & angulo positionis solis. Item tertio angulus positionis solis ex plaga solis, & eiusdem declinatione datis. Quarto declinatio solis ex angulo positionis solis, & differentia ascensionali. Quintò differentia ascensionalis ex declinatione solis, & eleuatione poli.

#### *Secundum exemplum.*

**D**etur plaga solis orientis B S, seu P.Z. S, 70. graduum: & eleuatio poli 54 graduum, quæ est P.B, aut complementum P.Z. Quærat autem differentia ascensionalis, scilicet complementum S.P.B, vel complementum S.P.Z, Et, quia hæc similiter extremæ partes circumponuntur intermediæ, ergo aufer differentialem plagæ solis seu 70. graduum, qui est — 10106827. ex logarithmo eleuationis poli 54. graduum, scilicet ex 2119353: & prouenient inde 12226180. differentialis graduum 16. 24 27 ferè, arcus differentię ascensionalis quæ sita.

### ADMONITIO.

**A**D huius exempli imitationem habetur scundò declinatio solis ex differentia ascensionali, & eleuatione poli datis. Item tertio angulus positionis solis ex declinatione solis, & differentia ascensionali. Quarto plaga solis ex angulo positionis solis, & declinatione eiusdem. Quintò eleuatio poli habetur ex plaga solis, & angulo positionis solis. Item contra habetur. Sexò differentia ascensionalis ex declinatione solis,

solis, & angulo positionis solis datis. Septimò declinatio solis ex angulo positionis solis, & plaga eius. Octauò angulus positionis solis habetur ex plaga solis & eleuatione poli datis. Nonò plaga solis ex eleuatione poli, & differentia ascensionali. Decimò tandem eleuatio poli habetur ex differentia ascensionali, & declinatione solis datis.

*Tertium exemplum.*

**I**N posteriore exemplo eiusdem septimæ tres quæstionis partes circulares proponuntur hæc, declinatio solis, eleuatio poli, & angulus positionis solis. Ex sunt in rectangulo B. P. S. complementum P. S. B. P. & complementum B. S. P., & in non rectangulo quadranti P. Z. S., ex sunt, complementum P. S. complementum Z. P. & Z. S. P. Quarum trium dentur extremæ oppositæ, scilicet declinatio solis, quæ est complementum P. S. 11. grad. 33. 51', & angulus positionis solis, qui est complementum B. S. P., seu Z. S. P. 34. grad. 19. 21' ferè. Et quærat intermedia pars B. P., seu complementum Z. P., quæ est eleuatio poli. Addatur ergo antilogarithmus 11. grad. 33. 51', qui est 206271 ad antilogarithmum 34. grad. 19. 21', qui est 1913082 prouenient 2119353. Logarithmus 54. graduum pro eleuatione poli quæsitæ.

*AD MONITIO.*

**P**Ræter eleuationem poli hoc jam modo inuentam, poteris secundò per eandem praxim habere plagam solis ex eiusdem declinatione, & differentia ascensionali datis. Tertio angulum positionis solis ex differentia ascensionali & eleuatione poli. Quarto declinationem solis ex eleuatione poli, & plaga solis. Et quinto inuenies differentiam ascensionalem ex plaga solis & angulo positionis solis datis.

*Quartum exemplum.*

**E**tur declinatio solis complementum S. P. 11. graduum 33. 51', & eleuatio poli B. P. seu complementum P. Z. graduum 54. Quærat autem angulus positionis solis comple-

mentum B.S.P, seu P,S,Z:&, quia hic similiter extremæ partes intermediæ opponuntur. igitur auferendus erit antilogarithmus 11. graduum 35. 51", qui est 206271. ex logarithmo 54. graduum, qui est 2119353. & supererunt 1913082. antilogarithmus 34. graduum 19. 21' fere, qui sunt angulus positionis solis quæsitus.

### AD MONITIO.

**P**Ræter angulum positionis solis ac prima praxi acquisitum, habetur secundò eadem praxi declinatio solis ex datis differentia ascensionali & plaga solis. Tertiò habetur differentia ascensionalis ex datis eleuatione poli & angulo positionis solis. Quatrò eleuatio poli inuenitur ex plaga solis & eiusdem declinatione datis. Quintò plaga solis acquiritur ex angulo positionis solis & differentia ascensionali. Sextò (contrario ordine) angulus positionis solis inuenitur ex plaga solis & differentia ascensionali datis. Septimò declinatio solis habetur ex angulo positionis solis, & eleuatione poli datis. Octauò differentia ascensionalis ex declinatione solis, & eiusdem plaga inuenitur. Nonò eleuatio poli habetur ex data differentia ascensionali, & angulo positionis solis. Decimò tandem acquiritur plaga solis, ex eleuatione poli, & declinatione solis datis.

Atque ita ad imitationem horum quatuor exemplorum, triginta varix soluuntur quæstiones circularium partium, hoc est, triginta varix quæstiones in quadrantali rectangulo, & totidem in non rectangulo soluuntur hoc porisma, beneficio vnius tantummodo additionis vel subtractionis. Cæterum ad intelligentiam posterioris partis huius porismatis, de arcuum speciebus, vide exempla, (tertium, quartum, quintum, & sextum) sequentia.

DE NON QVADRANTALIBVS  
mixtis.

## CAP. V.

**H**Attenus quadrantalium, sequitur triangulorum Sphæricorum non quadrantalium doctrina.

1. Non quadrantale est triangulum Sphæricum, cuius nec latus, nec angulus quadrans est.
2. Non quadrantale reducitur ad bina quadrantalia, Si à vertice ad eius basim ( prout opus fuerit extensam ) dimittatur perpendicularis, aut quadrans arcus.
3. Perpendicularis cadit intra triangulum, si anguli apud basim sint eiusdem speciei: extra verò si diuersæ: & contrà.
4. Quadrans arcus cadit extra triangulum, si crura sint eiusdem speciei. Intra verò si diuersæ: & contrà.
5. Ex non quadrantalibus sex partibus, tres data solùm sufficiunt ad reliquarum scientiam comparandam: nisi forsitan trium datarum, quarum una alteri opponatur, tertia sit propinquior quadranti, quam altera eiusdem generis data. In hoc enim casu requiritur etiam dari species parvis quæ terisa opponitur, ut reliquæ sciantur.

Huius casus exempla sunt, quartum & sextum exemplum sequentium.

6. Partes tres datae aut miscellaneæ sunt, aut puræ.
7. Miscellaneæ sunt, quarum una est diuersi generis à reliquis duabus.

Vt cum dantur duo latera, & angulus aliquis: aut duo anguli cum latere aliquo.

8. In partibus miscellaneis datis, si ab illo termino lateris dati in cuius reliquo termino sit angulus datus, cadat ad basim perpendicularis, aut quadrans datum illum angulum subiendens, reducetur non quadrantale ad bina quadrantalia ( per nonam sect. cap. 4. huius ) scibilia.

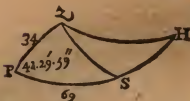
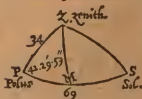
Inde & non quadrantalibus partibus ( quia cum horum quadrantalium partibus, aut partium reliquis communes sunt ) facile innotescunt,



cunt, cognitis tamen prius per 2. 3. & 4. sect. cap. 3. huius, aut ex hypothesis partium speciebus.

EXEMPLVM DVORVM LATERV,  
& anguli interpositi datorum.

VT sit (vltus & exercitij gratia) triangulum Sphaericum non quadrantale in superficie primi mobilis descriptum P Z. S. polum, Zenith, & solem referens: cuius sex partes sunt, latus P. Z, quod est interstitium poli & Zenith, seu complementum elevationis poli. Latus Z. S, interstitium Zenith & solis, seu complementum altitudinis solis.



Latus P. S. interstitium poli & solis, seu complementum declinationis solis ab æquatore. Angulus Z. P. S. hora diei, seu tempora horaria æquatoris. Angulus P. Z. S, quæ plaga est, seu azimuth solis à septentrione. Angulus P. S. Z, qui angulus est situs & positionis solis ad polum & zenith. Harum sex partium dantur tres quæcunque mistellaneæ. Verbi gratia, angulus horarius Z. P. S. 42. 29. 59. (qui horam secundam 49. 59. 56. pomeridianam notat) & latus P. Z. 34. complementum elevationis poli: atque latus P. S. 69. complementum declinationis solis. Ex quibus, vt acquirantur tres reliquæ partes, ab Z. termino lateris P Z. dati, dimittatur perpendicularis Z. M, aut, si mauis, quadrans Z. H. angulum datum Z. P. S. subtendens, reducensque non quadrantale oblatum P. Z. S. ad duo triangu- la in angulo M. quadrantalia, quæ sunt P. M. Z. & Z. M. S, vt in primo schemate: vel (si varietate delecteris) ad duo triangu- la in latere Z. H. quadrantalia, quæ sunt Z. H. P. & Z. H. S. vt in secundo schemate: Quorum qua-

quadrantalium omnes partes per 9. sect. cap. 4. huius acquies.  
 Nam ex datis  $PZ\ 34$ . atque  $ZPM$ . seu  $ZPS$ .  $42. 26. 59$ . inue-  
 nies perpendicularem  $ZM\ 22. 11. 47$  & angulum  $PZM$ .  $52. 40. 38$ . & latus  $PM\ 26. 20. 29$ . quo ablato à  $PS\ 69$ . restat  $MS\ 42. 33. 31$ . quo & perpendiculari  $ZM$ . iam cognitis, inuenies  
 per 9. sect. cap. 4. huius angulum  $MSZ$  seu quæsitum  $PSZ$ .  
 $31. 65$ . & latus quæsitum  $SZ\ 47$ . atque angulum  $MZS\ 67. 38. 11$ .  
 quo ad  $PZM\ 52. 40. 38$ . addito, fit angulus reliquus quæsitus  
 $PZS\ 120. 24. 49$ . Tres itaque habes partes quæsitæ officio  
 perpendicularis  $ZM$ . primi schematis. Eisdem quoque offi-  
 cio quadrantis  $ZH$  secundi schematis venari poteris. Ex da-  
 tis enim, ut supra,  $PZ\ 34$ . &  $ZPS$  seu  $ZPH\ 42. 26. 59$ . inue-  
 nies per eandem 9. cap. 4. huius, angulum  $ZHP$ .  $22. 11. 47$ .  
 & angulum  $PZH\ 142. 46. 38$ . & latus  $PH\ 116. 26. 29$ . ex quo  
 aufer  $PS\ 69$ . restat  $SH\ 47. 26. 29$ . quo & angulo apud  $H\ 21. 11. 47$ . iam habitis, inuenies per 9 cap. 4. huius, angulum  $HSZ\ 148. 53. 13$ . eiusque ad semicirculum reliquum scilicet  $31. 65$ .  
 angulum  $PSZ$  quæsitum : atque latus quæsitum  $SZ\ 47$ . De-  
 nique angulum  $HZS\ 21. 21. 49$ . quo ex  $HZP\ 142. 46. 38$ . abla-  
 to, restat angulus reliquus quæsitus  $PZS\ 120. 24. 49$ . prorsus  
 ut supra.

## AD MONITIO.

**H**uius exempli imitatione nouem variæ soluantur huius  
 & cuiusque trianguli quæstiones. Ex datis enim eleua-  
 tione poli, hora diei, & declinatione solis illius diei, habetur  
 ( ut supra ) primò azimuth seu plaga solis, secundò altitudo  
 solis, Tertiò angulus positionis solis. Item datis declinatione  
 solis, angulo positionis solis, & altitudine solis, habetur quartò  
 plaga solis, quintò eleuatio poli, sextò hora, seu arcus ho-  
 rarius. Item datis altitudine solis, plaga solis, & eleuatione  
 poli, habetur septimò hora diei, octauò declinatio solis, nonò  
 denique angulus positionis solis.

Secundum

*Secundum exemplum duorum angularum, & lateris  
interpositi, duorum.*

**P**Ræcedentium schematum datis angulis, horario scilicet  $Z.P.S. 42. 29. 39.$  & plagæ solis  $P.Z.S. 120. 24. 49.$  cum complemento elevationis poli, latere scilicet interposito  $P.Z. 34.$  Tres cæteræ partes exquiruntur. Nam habitis primò (ut supra)  $Z.M. 22. 11. 47.$  &  $P.M. 26. 26. 29.$  & angulo  $P.Z.M. 52. 46. 38.$  quo ex  $P.Z.S. 120. 24. 49.$  ablatò relictoque angulo  $M.Z.S. 67. 36. 11.$  ex hoc atque  $Z.M$  jam notis. inuenientur tandem latus quæsitum  $Z.S. 47.$  &  $Z.S.M.$  siue angulus quæsitus  $Z.S.P. 31. 6. 5.$  atque  $M.S. 42. 33. 31.$  quo ad  $P.M.$  addito, fit reliquum latus quæsitum  $P.S. 69$  Hasque beneficio perpendicularis primi schematis habes, nec secus easdem officio quadrantis secundi schematis acquirere poteris: acquiruntur enim (per nonam quarti huius) ex datis, anguli  $P.H.Z.$  &  $P.Z.H.$  & ex hoc subducto  $P.Z.S.$  dato, restat  $S.Z.H.$  quo, & angulo  $P.H.Z$  jam notis propalantur cæteræ omnes partes.

#### ADMONITIO.

**H**uius exempli imitatione nouem variæ soluuntur huius, & cuiusque trianguli quæstiones. Ex datis enim (ut supra) hora diei, elevatione poli, & plaga solis, habetur primò declinatio solis. Secundò angulus positionis solis, tertio altitudo solis. Item datis hora diei, declinatione solis, & angulo positionis solis, habetur quartò altitudo solis, quintò plaga solis sextò elevatio poli. Item datis angulo positionis solis, altitudine solis, & plaga solis acquiritur septimò elevatio poli octauo hora diei, nono declinatio solis.

*Tertium*

*Tertium exemplum duorum datorum laterum, quorum quadrantis propinquius subten dit angulum datum.*

**P**recedentium schematum dentur latera P. Z. 34 & eo quadranti propinquius Z.S.47.cum eo quem hoc subten dit angulo Z P.S.42.26 59.acquirantur per 9 sect cap.4. huius Z.M.22.11.47.& P.Z.M.52.46.38.& P.M.26.26 29.& simili modo habebis Z.S.M.leu quæsitum angulum Z.S.P.certissi mē enim scitur hic per 2.senc.cap.3. huius, minor quadrante, scilicet esse 31.6.5.& non esse 148.53 59 Habebis etiam an gu lum M.Z.5.67,18.11.quo ad P.Z.M.52.46.38.addito, sit reli quus quæsitus angulus P.Z.S.120.24 49 Habebis denique & M.S.42.33.31.quo ad P.M.26.26.29 addito, sit quæsitum latus P.S.69.Nec secus eadem acquirere poteris (si libet) officio quadrantis Z.H.secundi schematis.

*Quartum exemplum duorum datorum laterum, quorum quadran tis minus propinquum subten dit angulum datum: magis an tem propinquum subten dit angulum data tantum species.*

**D**entur latera Z S, 47, & eo quadranti minus propinquum P. Z. 34. cum eo quem hoc subten dit angulo Z S P, 31 65. deturque quod quem Z S subten dit (angulus scilicet S P Z)



sit specie minor quadrante: Dimisso itaque ab Z. ad basim P. S. perpendiculari Z. M ( ut priu. ) aut qua drante Z I. ut hic subten dente angulum datum Z. S.P.Acquirantur per 9.sect.

4.huius cæteræ partes, ut (exerciti & varietatis gratiâ) ex huius schematis quadrante Z I.acquirens angulum Z I. S.22.11.47, & I.Z.S.157.36.11.Et S.I.13.33.31.& simili modo ha bebis angulum I P.Z,& per coniequens angulum quæsitum S.P.Z.42.29.59.Quia ex hypothesi expressè quadrante minor

G 2 décl

declaratur, alioquin nisi eius daretur species, foret ( ex prima cap. 3. & quinta sect. huius cap. ) incertus : potuit enim aliter fuisse 137. 36.  $\frac{1}{2}$ . Habebis etiam sic angulum I. Z. P. 37. 1  $\frac{1}{2}$ . 2  $\frac{1}{2}$ . quo ex I. Z. S. 157 38.  $\frac{1}{2}$ . ablato, relinquitur reliquus quæ situs angulus P. Z. S. 120. 24 49. Habebis denique & I. P. 63. 33. 31. quo ex I. S. 132. 31. 31. ablato, remanet quæ situm latus P. S. 69.

Eadem etiam metas attinges si beneficio perpendicularis Z. M. primi schematis, partium logarithicen quæ fueris.

### ADMONITIO.

**P**recedentis tertij & huius quarti exemplorum imitatione, cæteræ decem variæ soluuntur huius & cuiusque trianguli quæstiones. Ex datis enim ( vt in tertio exemplo ) eleuatione poli, altitudine solis, & hora diei, habetur primò plaga solis, secundò angulus positionis solis, tertio declinatio solis. Item datis ( vt in hoc quarto exemplo ) eleuatione poli, altitudine solis, & angulo positionis solis, habetur quartò plaga solis, quinto hora diei, sexto declinatio solis. Item datis altitudine solis, declinatione solis, & hora diei, habetur septimò angulus positionis solis, octauò plaga solis, nonò eleuatio poli. Item datis altitudine solis, declinatione solis, & plaga solis, habetur decimò angulus positionis solis, vndecimò hora diei, duodecimò eleuatio poli. Item datis declinatione solis, eleuatione poli, & angulo positionis solis, habetur decimotertio plaga solis, decimoquarto altitudo solis, decimoquinto hora diei. Item datis declinatione solis, eleuatione poli, & plaga solis, habetur decimosexto hora diei, decimosextimò angulus positionis solis, & decimo-octauò altitudo solis.

*Quintum exemplum duorum duorum angulorum, quorum quadrans propinquior latus diuini subitendit.*

**T**rianguli P. Z. S. primi schematis, dentur anguli P. S. Z. 31. 12. & eo quadranti propinquior S. P. Z. 42. 29. 59. cum latere Z S. 47. hanc subitendente. Ex quibus P. S. Z. & S. Z. habetur ( per nonum quartum huius ) perpendicularis Z. M. 22. 11. 4. &

4<sup>o</sup> & ceteræ partes quadrantalibus S.Z.M. scilicet M. Z. S. 67. 38.11 & M.S. 42.33.31. Sicut & ex perpendiculari hoc cum dato Z.P.S. seu Z.P.M. angulo, habentur partes omnes quadrantalibus Z. M. P. Scilicet primò latus quæsitum P. Z. certissimè enim scitur hoc ( per 2. sentent. cap. 3. huius ) minus quadrante, videlicet esse 34. non autem esse 146. Deinde habetur P.Z. M. 52.46.38. quo ad S.Z.M. 67. 38.11. addito, fit quæsitus angulus P. Z. S. 120.24.49. Vltimò habetur P.M. 26.26.29. quo ad M. S. 42. 33. 31. addito, fit reliquum latus quæsitum P.S. 69. His etiam ipsas partes aliter ( si mauis ) ex duobus proximè præcedentis Schematis quadrantalibus Z.I.S. & Z.I.P. acquirere poteris.

*Sextum exemplum duorum datorum angulorum, quorum quadi-  
tu minus propinquum subtrahit latus datum, magis autem  
propinquum subtrahit latus date  
tantum species.*

**T**rianguli P.Z.S. primi Schematis dentur anguli Z. P. 9. 42.29.59. & eo quadranti minus propinquus Z.S.P. 31.23. cum eum subtrahente latere P.Z. 34. Deturque quod angulus in Z.P.S. subtrahens, ( scilicet latus Z.S. ) sit specie minus quadrante. Ex his datis quæritur perpendicularis Z.M. 22.11.49. & ceteræ quadrantalibus P.Z. M. partes, scilicet P. Z. M. 52.46.38. & P.M. 26.26.29. Sicut & ex perpendiculari hoc cum dato Z.S.M. seu Z.S.P. 31.23. quærantur partes omnes quadrantalibus Z.M.S. scilicet primò latus oporatum Z.S. 47. quia ex hypoth. et expressè quadrante minus declarantur, alioquin potuit facile 133. Nam ( per 1. cap. 3. & quintam huius ) incertum est nisi eius expressè detur species. Deinde angulus M. Z. S. 67. 38.11. quo ad M.Z.P. 52.46.38. addito fit oporatus angulus P. Z. S. 120.24.49. Denique habetur S. M. 42. 33. 31. Quo ad P.M. 26.26.29. addito, fit oporata basis P. S. 69. eadem etiam partes ex duobus quadrantalibus P.H.Z. & S.H.Z. secundi schematis, quàm facillimè acquirere poteris.

AD

## ADMONITIO.

**P**recedentis quinti & huius sexti exemplorum imitatio-  
ne, octodecim variæ soluuntur huius, & cuiusque trian-  
guli quæstiones. Ex datis enim ( ut in quinto exemplo ) an-  
gulo positionis solis, hora dici, & altitudine solis, habetur pri-  
mò eleuatio poli, secundò plaga solis, tertio declinatio solis.  
Item datis ( ut in hoc sexto exemplo ) hora dici, angulo po-  
sitionis solis, & eleuatione poli, habetur quartò altitudo solis,  
quintò plaga solis, sextò declinatio solis. Item datis hora dici,  
plaga solis, & altitudine solis, habetur septimò declinatio so-  
lis, octauò angulus positionis solis, nonò eleuatio poli. Item  
datis hora dici, plaga solis, & declinatione solis, habetur deci-  
mò altitudo solis, undecimò angulus positionis solis, duode-  
cimò eleuatio poli. Item datis plaga solis, angulo positionis  
solis, & declinatione solis, habetur decimotertio eleuatio po-  
li, decimoquartò hora dici, decimoquintò altitudo solis. Item  
datis plaga solis, angulo positionis solis, & eleuatione poli,  
habetur decimosextò declinatio solis, decimosseptimò hora  
dici, decimo-octauò altitudo solis. Atque ita huius solius ca-  
nonis methodo, quinquaginta quatuor variæ soluuntur quæ-  
stiones eiusdem trianguli non quadrantalibus, Cæteræ inferius  
soluentur.

9. *Ex his itaque patet quod duorum angulorum & suorum subtenden-  
tium laterum tribus datis, quarti saltem Logarithmus innotescet, ta-  
cita etiam quadrantalium descriptione. Ab aggregato enim ex Lo-  
garithmis anguli & lateris sibi adiacentis datorum, aufer Logarith-  
mum tertij dati, & pronemus inde Logarithmus quarti quæstii,  
ipsumque quartum, nisi sit incerta species, innotescet.*

Vt ex superioribus tertio, quarto, quinto, & sexto exemplis  
percipi potest. Angulorum enim basis Z. P. S. & Z. S. P. & suo-  
rum subtendentium crurum Z. S. & Z. P. dentur tria, quæ  
( verbi gratia ) sint crura Z. S. 47, eiusque Logarithmus  
3128580, & Z. P. 34. eiusque Logarithmus 5812606, cum huic  
adiacente angulo Z. P. S. 42. 29. 59. cuius Logarithmum  
3921720 adde ad 5812606, fit 9734316 ( Logarithmus scilicet  
taciti



raciti & suppressi perpendicularis Z.M. vel anguli Z.H.S. seu Z.I.P.) à quo aufer 3128580 remanet 6605746 Logarithmus quarti Z.S.P. quæ sit. Ipsum itaque quartum Z.S. P. erit 31.6.5. Quoniam per 2. sect. cap. 3. minus quadrante arguitur. Contra autem datis Z.P. 34. eiusque Logarithmo 5812606. & Z.S. 47. eiusque Logarithmo 3128580, cum huic adiacente angulo Z.S.P. 31.6.5. ad cuius logarithmum 6605746. adde 3128580. fit aggregatum (ut supra) 9734326. à quo aufer 5812606. provenient 3921720 Logarithmus quarti quæ sit, scilicet Z.P.S. cuius arcus per 1. sect. cap. 3. incertus est an sit 42. 29. 59. an 137. 30. 1. nisi declaret hypothesis maiorne, an minor sit quadrante.

## DE NON QUADRANTALIBVS purlis.

### CAP. VI.

**H**æcenus de partibus miscellaneis datis: Sequuntur puræ.

1. *Pura sunt tres partes eiusdem generis datae. Suntque aut tria latera data, & queruntur anguli: aut tres anguli dati, & queruntur latera.*

#### ADMONITIO.

1. *Pra quamvis simplicitate priores, ob difficultatem tamen earundem merito hic posteriorem sortimur locum.*
3. *In triangulis Sphericis primò summa ex Logarithmis crurum subducta à summa ex Logarithmis aggregati & differentia semi-basis & semidifferentia crurum, relinquit duplum Logarithmi dimidi anguli verticalis.*

Quia

Quia docent Regionontanus libro 5. cap. 1. de triangulis, & alij, vt rectangulum comprehensum sub sinibus rectis crurum, se habet ad quadratum sinus totius: Ita differentiam sinuum versorum basis & differentie crurum se habere ad sinum versum anguli verticalis: quum autem vt illa differentia ad hunc sinum versum, ita rectangulum factum ex sinibus rectis aggregati & differentie semibasis & semidifferentie crurum, se habet ad quadratum sinus recti dimidij anguli verticalis (est enim nouissimum hoc rectangulum ad illam differentiam sinuum versorum, & hoc vltimum quadratum ad illum sinum versum in ratione 5900000<sup>cupla</sup>, & intellige quinquies millies millecupla, existente sinu toto 10000000.) Ideo sequetur quod, vt rectangulum sub sinibus rectis crurum se habet ad quadratum sinus totius, ita rectangulum factum ex sinibus rectis aggregati & differentie semibasis & semidifferentie crurum, se habebit ad quadratum sinus recti dimidij anguli verticalis: & per consequens (ex corol. def. 6. cap. 1. & prop. 4. cap. 2. & probl. 3. cap. 5. lib. 1.) Summa ex Logarithmis crurum, subducta ex Logarithmis aggregati & differentie semibasis & semidifferentie crurum, relinquit duplum Logarithmi dimidij anguli verticalis, vt supra.

4. *Secundo, Summa ex Logarithmis crurum subducta à summa ex Logarithmis aggregati & differentia semibasis & semiaggregati crurum, relinquit duplum antilogarithmi dimidij anguli verticalis.*

Non enim aliter se habet summa ex Logarithmis aggregati & differentie semibasis & semiaggregati crurum huius propositionis, ad summam ex Logarithmis aggregati & differentie semibasis & semidifferentie crurum precedentis propositionis, quam duplum antilogarithmi dimidij anguli verticalis: hic, ad duplum logarithmi eiusdem dimidij anguli verticalis superius, quod alterius loci est demonstrare.

## ADMONITIO.

5. **I**N Sphericis etiam, habes veram & alternam, eodem sensu casum, quo in rectilineis, nimirum alteram pro aggregatio, alteram pro differentia casuum.
6. Tercio differentialis semibasis vera data, subducens ex summa differentialium semiaggregatio & semidifferentia crurum, relinquit differentialem semibasis alternam.

Huius ratio fundamentalis est, quod ut tangens semibasis veræ se habet ad tangentem semiaggregati crurum, ita tangens semidifferentiæ crurum se habeat ad tangentem semibasis alternæ. Tangentium enim logarithmi sunt suorum atque differentiales per Sect. 22. & 25. cap. 3. lib. 1. Unde hæc tangentium analogiam sequitur illa suorum logarithmorum, seu differentialium æqualitas per prop. 4. cap. 2. lib. 1. Verum quia huius analogiæ tangentium fundamentalis, hactenus in quotæ demonstrationem a me fortè requirit Lectores, eam ideo, quantum huius compendij breuitas patitur, hic explicabimus.

Sphæra itaque  $AEPG$  incumbat plano  $HIKQ$ . ut se invicem tangent in communi puncto  $A$ , à quo per Sphære centrum & eugatur recta  $A\Theta P$  secans supremum Sphære Hemispherium in puncto  $P$ . eritque ita  $A\Theta P$  perpendicularis plano  $HIKQ$ , deinde angulo  $A$  describatur in Sphære superficie triangulum  $A\lambda\gamma$  in  $\gamma$  acutum, aut  $A\lambda\beta$  in  $\beta$  obtusum, & protractis semicirculis  $A\lambda P$ , &  $A\gamma P$ , seu  $A\beta P$ , polo  $\lambda$  interno  $\lambda\gamma$  seu ei æquali  $\lambda\beta$  ducatur circulus  $\lambda\epsilon\gamma$ , secans  $\lambda P$  in  $\epsilon$  &  $\lambda A$  in  $\epsilon$  &  $A\beta\gamma$  in punctis  $\beta$  &  $\gamma$ . Ex puncto  $\lambda$  in arcum  $A\beta\gamma$  dimittatur perpendicularis arcus  $\lambda\mu$ . Erunt itaque hic  $A\lambda$  crus maius,  $\lambda\gamma$  vel  $\lambda\beta$  crus minus,  $A\gamma$  &  $A\beta$  bases, altera vera, reliqua alterna,  $A\epsilon$  differentia crurum, &  $A\epsilon$  aggregatio crurum, quia  $\lambda\epsilon$  &  $\lambda\epsilon$  ex constructione sunt æqualia minori cruri  $\lambda\gamma$  seu  $\lambda\beta$ . His peractis, & supposito vicem gerere oculi aut lucidi cuiuspiam, ab eodem  $P$  in subiectum planum  $HIKQ$  dimittatur, radius  $P\gamma$  secans planum in  $C$ , & radius  $P\beta$  secans planum in  $b$ : &

H  
qui

quæ  $P A b$ , &  $P A c$ , sunt in  $A$  rectangula, atque ideo etiam  $A d$  est tangens anguli  $A P d$ , seu  $A P d$ , &  $A e$  est tangens anguli  $A P e$ , vel  $A P e$  sic erit in  $A b$  est tangens anguli  $A P \beta$  vel  $A P b$ , &  $A c$  est tangens anguli  $A P \gamma$  vel  $A P c$ , posito gnomone seu sinu toto  $P A$ . & quia  $A d$  est tangens anguli  $A P d$ , &  $A P d$  est dimidium anguli  $A \odot d$  per 20. prop. 3. Eucl. (quod hic sit in centro, ille in circumferentia) ideo  $A d$  est tangens dimidij anguli  $A \odot d$ , seu (quod idem est) dimidij arcus  $A d$ , quod est semidifferentia crurum Similiter quia  $A e$  est tangens anguli  $A P e$ , angulus autem  $A P e$ , in circumferentia sit dimidium anguli  $A \odot e$  in centro, ideo  $A e$  est tangens dimidij  $A \odot e$ , seu dimidij arcus,  $A e$ , quod est semiaggregatum crurum. Simili modo in basibus vera & alterna erit  $A b$  tangens anguli  $A P \beta$ , seu dimidij anguli  $A \odot \beta$ , seu dimidij arcus  $A \beta$ , quod est altera semibasis; atque  $A c$  erit tangens anguli  $A P \gamma$ , seu dimidij anguli  $A \odot \gamma$ , seu dimidij arcus  $A \gamma$ , quod est reliqua semibasis. Quumque jam ostensum sit quod  $A b$  sit tangens alterius semibasis, &  $A c$  tangens reliquæ semibasis, atque  $A d$  sit tangens semidifferentiæ crurum, &  $A e$  tangens semiaggregati crurum. Dico quod ut  $A b$  tangens semibasis veræ se habet ad  $A e$  tangentem semiaggregati crurum, ita  $A d$  tangens semidifferentiæ crurum ad  $A c$  tangentem semibasis alteræ: vel contrà ex alterna veram faciendo, ut  $A c$  tangens semibasis veræ se habeat ad  $A e$  tangentem semiaggregati crurum: Ita  $A d$  tangens semidifferentiæ crurum ad  $A b$  tangentem semibasis alteræ. Quod sic probo. Si puncta  $b c d e$  sint in eodem circulo, erit (per 36. prop. 3. & 16. prop. 6. Euclid.) ut  $A b$  ad  $A c$ , ita  $A d$  ad  $A e$ . & contrà, &c. ut jam diximus. Verùm puncta  $b c d e$  cadunt in eodem circulo: Omnis enim circuli in superficiæ Sphæræ descripti umbra à lucido in eadem superficie, quod non est in circuli peripheria procedens circum circum facit perfectè rotundum in plano orthogono ad rectam, quæ à lucido per centrum Sphæræ progreditur, ut ex Opticis, & astrolabij fabrica patet. At hic circulus  $d \beta \gamma$  in sphæræ superficie describitur, & lucidum  $P$  est extra circuli peripheriam, quæque ab eo procedit recta per cẽtrum (videlicet  $P \odot A$ ) est ad planum orthogona. Necessariò ergo eius circuli umbra, quæ in puncta  $d. b. c. e.$  incidit, circularis est: & perfectè rotunda.

Ergo ut se habent A. B. ad A. C. It. vel ad A. C. & contra, id est, ut tangens semibasis, verè ad tangentem semimaggregati crurum, ita tangens semidifferentiæ crurum ad tangentem semibasis alternæ: & per consequens, differentialis semibasis verè, subductus ex summa differentialium semiaggregati, & semidifferentiæ crurum, æquatur differentiæ semibasis alternæ, quæ demonstranda suscepimus.

7. *Unde trianguli Spherici datis tribus lateribus, habetur triplici modo angulorum quivis.*

8. *Primus modus est, ut latus quodvis ( præcipuè quadranti proximum ) pro basi statuas. Inde semidifferentiam crurum, & ad semibasim addas, & a semibasi subtrahas: producti & residui Logarithmos addas, hinc auferas aggregatum ex Logarithmis crurum, & reliqui bipartiti Logarithmi arcum duplices, & proveniet angulus verticalis, atque ita ceteri.*

Ut trianguli P Z S repetiti, dentur latera P Z 34 gr. & Z S 47 gr. & S P 69 gr. Quærantur anguli, primòque quadranti proximus P Z S angulus, quam S P 69 ( latus scilicet quadranti proximum ) subtendit. Hoc itaque S P 69 pro basi statuatur. Inde semidifferentiam crurum P Z, & Z S, videlicet 6.36. Et adde ad semibasim 34. 36. fientque 41 aggregatum: & subtrahæ ab ea, fientque 28. residuum.

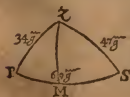
Logarithmos graduum 41, scilicet 2215044, & graduum 28, scilicet 7561472 adde, fient 11776516. Similiter crurum P. Z. 34. & Z S. 47. Logarithmos 5812606, & 3128580 adde, fientque 8941186. quibus ex 11776516 ablatis, fient 2835330. cuius dimidto logarithm. 1417665. respondentem arcum, videlicet 6c. 12. 24. 1/2 duplica, proventient 120. 24. 49. angulus verticalis P. Z. S. quæsitus. Nec secus angulos reliquos, si libet, invenire poteris: facilius tamen per 9. cap 5. huius innotescant, quia per 2. sentent. cap 3. sunt certæ species.

9. *Secundus modus est, ut latus quodvis ( præcipuè quadranti proximo ) pro basi statuas, Semibasim & ad semimaggregatum crurum addas, & ab eodem subtrahas: producti & residui Logarithmos addas & hinc*

et hinc auferas aggregatum ex logarithmis crurum, reliqui bipartiti antilogarithmi arcum duplices, & promeriet inde angulus verticalis: atque sic ceteri.

Vt eiusdem trianguli P. Z. S. (constituti vt in præmissa) semibasilis 4.36. & ad semiagregatum crurum 40.30. adde, fientque 75 & ab eodem subtrahit, fientque 6, quorum 75 & 6 graduum logarith. 346683, & 22582951 adde, fientque 22929634. Hinc aut. aggregatum ex logarithmis crurum, quod (vt supra) est 8941186, fientque 13938448. Quæ bipartire, fient inde 6994224 antilogarithmus conueniens arcui 60. 11. 24. 1/2. cuius duplum 120.24.48. est (vt supra) quaesitus angulus P Z S verticalis. Cæteros licet etiam hoc modo, facilius tamen per 9. cap. 5. huius inuenies angulos. Sunt enim per 2. sent. cap. 3. notæ speciei. 10. Tertius modus est, vt latere quouis pro basi posito, differentialem semi-aggregati crurum ad differentialem semi-differentia crurum addas, & a producto auferas differentialem semi-basis vera, & promeriet inde differentialis semibasis alterna: quarum semibasilium summa est casus maior, & differentia casus minor, duo distinguentes reſtangu-  
la, 1. q. a. & suas, & ipsius oblatis trianguli partes omnes (per nonam cap. 4. & octauam cap. 5. huius) notas reddunt.

Vt propositi trianguli P. Z. S. datis lateribus vt supra, qua-  
ratur anguli apud basim Z P S. & Z S P. Semi-aggregatum cru-  
rum P Z. & Z S. est 40. 30. Semidifferentia crurum est 6. 39. Il-  
lius differentialis est 1577296, huius verò est 21721209. Quos  
adde, fient 23298505. Hinc aufer semibasis vera 34.30. differen-



rialem 3750122, remanent 19548383, dif-  
ferentialis 8. 1. 31. pro semibasi alterna.  
adde ergo semibases 34.30. & 8.1.31. fient  
inde 42. 33. 31. pro maiore casu M S. &  
subtrahit 8.1.31. à 34.30. relinquentur 26.  
26. 21. pro minore casu P M. horum itaq;  
casuum officio habes duo jam reſtangu-  
la in M. scilicet P M Z, & S M Z: quæ &

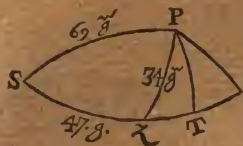
perpendicularem Z M, & angulos verticales P Z M, & S Z M,  
aut, si libet, ipsum P Z S. patet aciunt (per nonam cap. 4. & octa-  
uam cap. 5. huius.) Sed his omissis ad quaesitos basis angulos Z  
P S, & Z S P, redeamus. Casus P M, 26. 26. 21. iam acquisiti dif-

H 3 feren

ferentialem 6985518 (per 9.cap.4.) adde ad differentialem complementi P Z, scilicet ad differentialem 56, qui est — 3937709, provenient  $\dagger 3047809$  Logarithm. complementi anguli Z P S, quod complementum est 47.30". Similiter casus S M, 42.33.3", jam etiam acquisiti differentialem 853239 (per eandem nonam sect.) adde ad differentialem complementi P Z, scilicet ad differentialem 43 gr. qui est 698698 provenient  $\dagger 1551937$  Logarithmus complementi anguli Z S P, quod complementum est 58.53.55". Memor autem hic sis non ipsas partes P Z. 34. & Z P S, aut P Z 47. & Z S P, sed sua complementa, viz. 56 gr. & 47.30". & 43 gr. & 58 53.55". circulares partes hic dici per secundam cap. 4. huius. Verus itaque angulus quæsitus Z P S est 42.29.59". & Z S P est 31.6.5". vt etiam ex sect. octaua. cap. 5. huius patet.

*Aliud eiusdem trianguli exemplum.*

**E**odem triangulo P. Z. S. alio situ constituto, sit S. Z. basis, & datis lateribus vt supra, quæraturs angulus P. Z. S. Crurum itaque S. P. 69. & P Z. 34. semi-aggregatum est 51.30. eiusque



differentialis — 2288650: semi-differentia verò est 17.30. eiusque differentialis est  $\dagger 1542341$ .

Quos differentiales adde erit summa  $\dagger 9253691$ . à qua aufer differentialem dimidii basis S Z videlicet differentialem 23.30. qui est 8328403, remanebit 925288

differentialis arcus 42.21.11". pro semi-basi alterna. Adde ergo semi-bases 42.21.11" & 23.30. provenient 65.51.11". pro maiore casu S T, & tum subtrahere 23.30. à 42.21.11". remanent 18.51.11". pro minore casu T X, vel T Z. Huius ergo differentiale  $\dagger 10745201$ , adde ad differentialem complementum Z P, scilicet ad differentialem grad. 56, qui est — 3937709, & proveniet inde  $\dagger 6807492$  Logarithmus complementi anguli P Z T. Arcus autem in tabula respondens huic Logarithmo 6807492 ex aduerso, est graduum 56.33.11". pro angulo P Z T, cuius anguli P Z T, quum angulus quæsitus P Z S, sit ad semi-circulum reliquus (quod semper occurrit quum basis alterna est maior vera) erit necesse P Z S. esse graduum 120.24.49. sec. alioquin si ba-

sis ve



sis vera alternam superauerit, coincident anguli P Z T, & P Z S,  
& æquales erunt.

### ADMONITIO.

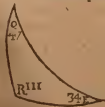
**T**Res iam habes veros modos inueniendi angulos ex datis  
lateribus, quorum vnoquoque tres variz solvuntur huius,  
& cuiuscunque trianguli quæstiones. Ex datis enim eleuatione  
poli, altitudine solis, & declinatione solis, dubitantibus satisfacit  
ad quæstionem qua vel plaga solis, vel secundò angulus situs &  
positionis solis, vel tertio hora diei quæritur.

*Huc usque ex lateribus inuenimus angulos. Superest ex angulis in-  
uenire latera.*

11. *In omni triangulo spherico mutari possunt latera in angulos, &  
anguli in latera: assumptis tamen prius pro unico quouis angulo, & suo  
subtendente latere suis ad semicirculum reliquis,*

*Exempli gratia.*

Esto triangulum Q R T, cuius sint anguli Q 47. R 111. &  
T 34. Sumamus primò pro angulo quouis, videlicet pro R 111.



suum ad semicirculum reliquum, quod est  
69. grad. Dico hos angulos 47. 69. & 34.  
mutari posse in latera, & fiet superius trian-  
gulum P Z S. In quo P Z. est 34 grad. Z S.  
est 47 grad. & P S est 69 grad. vt etiam ex  
illius trianguli, P Z S, angulis, fieri huius  
mutuò latera. Nam Z S P angulus grad. 31.  
6. illius, est latus Q R huius: & angulus

Z P S. grad 42. 29. 59. illius est latus R T huius: & tertiu  
guli illius, qui est grad. 120. 24. 49. reliquum ad semi-circulum,  
quod est 59 35 11 est latus Q T huius. Cuius rei demonstratio-  
nem exhibent Bartholomæus Pitiscus, Adrianus Metius, & alij.  
Eam igitur hac epitomæ minimè repetendam censeo.

12. *Vnde trianguli Spherici datis tribus angulis facili conuerfione  
acquiruntur latera.*

Vt præcedentis trianguli Q R T dentur anguli Q 47. R 111.  
& T 34. Querantur autem latera. Pro angulo quouis vnico,  
verbi gratia ( vt supra ) pro R 111. sumatur suum ad semicircu-  
lum reliquum 69. grad. Inde positis 47. 69. & 34. pro lateribus,

vt in

vt in triangulo superiore P Z S factum est, per quemuis ex tribus modis superscriptis quare illius angulos, & inuenies contra latus 47, angulum  $42.29.49$ ; & contra latus 34, angulum  $31.6.3$ ; & contra latus 69 (quod pro 111 posuimus) reperies angulum  $120.24.49$ . Ideo in triangulo oblato Q R T, pro latere R T, subtendente angulum Q 47, pone 42.  $29.49$ . Et pro latere Q R, subtendente angulum T 34, pone 31.  $6.3$  verum pro latere Q T subtendente angulum R 111, pone 59.  $35.11$ . quæ sunt reliquum graduum  $120.24.49$ , ad semi-circulum reliquum, scilicet 69. Et ita ex angulis per conuersionem acquies latera.

### ADMONITIO.

EX hac laterum per angulos datos inuentione tres variaz solutionum huius, & cuiuscunque trianguli quæstiones. Vt in triangulo P Z S. Ex datis, hora dici, plaga solis, & angulo itus vel positionis solis, hæc præcedens satisfacit quæstioni, qua vel primo eleuatio poli, vel secundo altitudo solis, vel tertio declinatio solis quaeratur. Ex octaua itaque scilicet præcedentis cap. 5. & septima & duodecima huius, sexaginta habes variarum quæstionum solutiones, quæ in quodque triangulum cadunt. Nec his plures ex multiplici trium partiumlibet partium compositione oriri possunt variationes. Perfectam igitur habes, & absolutam triangulorum tam Sphæricorum, quam planorum doctrinam.

### CONCLUSIO.

Scitis, ergo iam ostensum est quid sint, & cuius usus sint Logarithmi: Eorum enim beneficiis absque multiplicationis, diuisionis, aut radicum extractionis molestia, omnis Geometricæ quæstionis solutionem logisticam promptissime exhibitis, tum apodicticè demonstratis, tum exemplis vtriusque Sphæricæ doctrinæ. Promissum itaque iurificum Logarithmorum canonem habetis, cuiusque amplissimum summa, si vobis eruditioribus gratia fore ex respiciis vestris indicero, animi mihi ad etur, ad tabula conuersionis methodum in lucem etiam proferendam. Incribit hæc breuis tabula finem. Deoque optime iuniorum omnium quæ opterit bonorum, & pulcherrimam deum iuniorum & gloriam exoptare.

SEQUITVR

# T A B V L A

CANONIS LOGA-

RITHMORVM seu

ARITHMETICARVM

SVPPVTATIONVM.

Ensuit l'Indice du Canon des Logarithmes.

A S C A V O I R,

La Table de l'admirable inuention pour  
promptement & facilement Abreger les sup-  
putations, d'Arithmetique avec son vsage, en l'v-  
ne & l'autre Trigonometrie, & aussi en toute  
Logistique Mathematique.



L V G D V N I,

Apud BARTHOL. VINCENTIVM.

Cum priuilegio Cæsareo & Galliarum Regis.

Gr. o

o		†   —			
min	Sinus	Logarithmi	Differentia	Logarithmi	Sinus
0	0	Infinitum	Infinitum	0	10000000 60
1	2909	81425681	81425680	1	10000000 59
2	5818	74494213	74494211	2	9999998 58
3	8727	70439560	70439560	4	9999998 57
4	11636	67562746	67562739	7	9999993 56
5	14544	65331315	65331304	11	9999989 55
6	17453	63508099	63508083	16	9999986 54
7	20362	61966595	61966573	22	9999980 53
8	23271	60631284	60631256	28	9999974 52
9	26180	59453453	59453418	35	9999967 51
10	29088	58399857	58399814	43	9999959 50
11	31997	57446759	57446707	52	9999950 49
12	34906	56576646	56576584	62	9999940 48
13	37815	55776222	55776149	73	9999928 47
14	40724	55031148	55031064	84	9999917 46
15	43632	54345225	54345129	96	9999905 45
16	46541	53699843	53699734	109	9999892 44
17	49450	53093600	53093577	123	9999878 43
18	52359	52522019	52521881	138	9999863 42
19	55268	51981356	51981202	154	9999847 41
20	58177	51468431	51468361	170	9999831 40
21	61086	50980537	50980450	187	9999813 39
22	63995	50515342	50515147	205	9999795 38
23	66904	50070827	50070603	224	9999776 37
24	69813	49645239	49644995	244	9999756 36
25	72721	49237030	49236765	265	9999736 35
26	75630	48844826	48844539	287	9999714 34
27	78539	48467431	48467122	309	9999692 33
28	81448	48103763	48103431	332	9999668 32
29	84357	47752859	47752503	356	9999644 31
30	87266	47413852	47413471	381	9999619 30

Gr.

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+ -

min	Sinus	Logarithmi	Differencia	Logarithmi	Sinus
30	87265	47413471	47413471	381	9999619
31	90174	47085554	47085554	407	9999593
32	93083	46768049	46768049	434	9999566
33	95992	46460773	46460773	461	9999539
34	98901	46162254	46162254	489	9999511
35	101809	45871392	45871392	518	9999482
36	104718	45590688	45590688	548	9999452
37	107627	45316714	45316714	579	9999389
38	110536	45050041	45050041	611	9999389
39	113445	44790296	44790296	644	9999357
40	116353	44537132	44537132	677	9999323
41	119262	44290216	44290216	711	9999287
42	122171	44049255	44049255	746	9999254
43	125079	43813954	43813954	782	9999218
44	127988	43584078	43584078	819	9999181
45	130896	43359360	43359360	857	9999143
46	133805	43139582	43139582	896	9999105
47	136714	42924534	42924534	935	9999066
48	139622	42714014	42714014	975	9999025
49	142531	42507833	42507833	1016	9998984
50	145439	42305826	42305826	1058	9998941
51	148348	42107812	42107812	1101	9998900
52	151257	41913644	41913644	1145	9998856
53	154166	41723175	41723175	1189	9998811
54	157075	41536271	41536271	1234	9998766
55	159982	41352795	41352795	1280	9998720
56	162891	41172626	41172626	1327	9998673
57	165799	41006643	41006643	1375	9998625
58	168708	40821740	40821740	1424	9998577
59	171616	40650816	40650816	1473	9998527
60	174524	40481764	40481764	1523	9998477

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	Sinus	Logarithmi	Differentia	Logarithmi	Sinus	
0	174524	40482764	40481241	1523	9998477	60
1	177433	40317483	40315909	1574	9998426	59
2	180341	40154859	40153273	1616	9998374	58
3	183250	39994918	39993239	1679	9998321	57
4	186158	39837448	39835715	1733	9998267	56
5	189066	39682421	39680633	1788	9998212	55
6	191975	39529765	39527922	1843	9998157	54
7	194883	39379407	39377598	1899	9998101	53
8	197792	39231274	39229313	1956	9998044	52
9	200700	39085307	39083293	2014	9997986	51
10	203608	38941441	38939368	2073	9997927	50
11	206517	38799612	38797479	2133	9997867	49
12	209425	38659767	38657573	2194	9997806	48
13	212333	38521858	38519603	2255	9997745	47
14	215241	38385824	38383507	2317	9997683	46
15	218149	38251613	38249233	2380	9997620	45
16	221057	38119183	38116739	2444	9997556	44
17	223965	37988348	37985972	2509	9997491	43
18	226873	37859471	37856896	2575	9997425	42
19	229781	37732105	37729464	2641	9997359	41
20	232689	37606339	37603631	2708	9997292	40
21	235597	37482135	37479359	2776	9997224	39
22	238505	37359458	37356613	2845	9997155	38
23	241413	37238269	37235354	2915	9997085	37
24	244321	37118532	37115546	2986	9997014	36
25	247229	37000208	36997150	3058	9996943	35
26	250137	36883272	36880142	3130	9996871	34
27	253045	36767690	36764487	3203	9996798	33
28	255953	36653428	36650151	3277	9996724	32
29	258861	36540448	36537096	3351	9996649	31
30	261769	36428748	36425320	3428	9996573	30

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mi.	Sinus	Logarithmi	Differentia	Logarithmi	Secus	†
30	161769	36428748	36425320	3428	9996573	30
31	164677	36318272	36314763	3504	9996496	29
32	167585	36209009	36205427	3582	9996419	28
33	170493	36100924	36097264	3660	9996341	27
34	173401	35994000	35990261	3739	9996262	26
35	176308	35888207	35884388	3819	9996182	25
36	179216	35783520	35779620	3900	9996101	24
37	182124	35679917	35675935	3982	9996019	23
38	185032	35577380	35573416	4064	9995937	22
39	187940	35475892	35471945	4147	9995854	21
40	190847	35375415	35371484	4231	9995770	20
41	193755	35275935	35271619	4316	9995685	19
42	196663	35177444	35173042	4402	9995599	18
43	199570	35079909	35075420	4489	9995512	17
44	202478	34983320	34978743	4577	9995424	16
45	205375	34887652	34882987	4665	9995336	15
46	208293	34792895	34788141	4754	9995247	14
47	211200	34699029	34694185	4844	9995157	13
48	214108	34606036	34601101	4935	9995066	12
49	217015	34513899	34508872	5027	9994974	11
50	219922	34422606	34417486	5120	9994881	10
51	222830	34332140	34326926	5214	9994787	9
52	225737	34242484	34237176	5308	9994693	8
53	228645	34153629	34148226	5403	9994598	7
54	231552	34065549	34060100	5499	9994502	6
55	234459	33978244	33972650	5596	9994405	5
56	237367	33891701	33886007	5694	9994307	4
57	240274	33805893	33800100	5793	9994208	3
58	243181	33720820	33714927	5893	9994109	2
59	246088	33636464	33630471	5993	9994009	1
60	248995	33552817	33546721	6094	9993908	0

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$m n$	Sinum	Logarithmi	Differentia	Logarithmi	Secant
0	348995	33552817	33546723	6094	9993908
1	351902	33469860	33463664	6196	9993806
2	354809	33387588	33381289	6299	9993703
3	357716	33305993	33299590	6403	9993599
4	360623	33225056	33218549	6507	9993495
5	363530	33144770	33138158	6612	9993390
6	366437	33065128	33058410	6718	9993284
7	369344	32986107	32979281	6825	9993177
8	372251	32907712	32900779	6933	9993069
9	375158	32829923	32822881	7041	9992960
10	378064	32752740	32745588	7152	9992850
11	380971	32676149	32668887	7262	9992740
12	383878	32600139	32592866	7373	9992629
13	386785	32524706	32517221	7485	9992517
14	389692	32449837	32442239	7598	9992404
15	392598	32375526	32367814	7712	9992290
16	395505	32301761	32293934	7827	9992175
17	398412	32228539	32220596	7943	9992060
18	401318	32155852	32147793	8059	9991944
19	404225	32083692	32075516	8176	9991827
20	407131	32012045	32003751	8294	9991709
21	410038	31940909	31932496	8413	9991590
22	412944	31870276	31861743	8533	9991470
23	415851	31800141	31791887	8654	9991349
24	418757	31730492	31721716	8776	9991228
25	421663	31661332	31652434	8898	9991106
26	424570	31592644	31583623	9021	9990983
27	427476	31524424	31515279	9145	9990859
28	430382	31456672	31447402	9270	9990734
29	433288	31389371	31379975	9396	9990608
30	436194	31322524	31313001	9523	9990482

min	Sinus	Logarithmi	Differantia	Logarithmi	Sinus	
30	436194	31322524	31313001	9523	9990482	30
31	439100	31256121	31246471	9650	9990355	29
32	442006	31190158	31180380	9778	9990227	28
33	444912	31124626	31114719	9907	9990098	27
34	447818	31059521	31049484	10037	9989968	26
35	450724	30994841	30984673	10168	9989837	25
36	453630	30930577	30920277	10300	9989706	24
37	456536	30866722	30856290	10432	9989574	23
38	459442	30803277	30792712	10565	9989441	22
39	462348	30740230	30729531	10699	9989307	21
40	465253	30677578	30666744	10834	9989172	20
41	468159	30615317	30604347	99870	9989036	19
42	471065	30553442	30542335	11107	9988899	18
43	473970	30491949	30480704	11245	9988761	17
44	476876	30430834	30419451	11383	9988623	16
45	479781	30370090	30358568	11522	9988484	15
46	482687	30309715	30298053	11662	9988344	14
47	485562	30249702	30237899	11803	9988203	13
48	488498	30190049	30178104	11945	9988061	12
49	491403	30130749	30118661	12088	9987918	11
50	494308	30071797	30059565	12232	9987775	10
51	497214	30013193	30000081	12376	9987631	9
52	500119	29954933	29942412	12521	9987486	8
53	503024	29897014	29884347	12667	9987340	7
54	505929	29839424	29826610	12814	9987193	6
55	508834	29782165	29769203	12962	9987045	5
56	511740	29725236	29712125	13111	9986897	4
57	514645	29668628	29655367	13261	9986748	3
58	517550	29612331	29598910	13411	9986598	2
59	520455	29556458	29542796	13562	9986447	1
60	524360	29500706	29486992	13714	9986295	0

min	Sinus	Logarithmi	Differentia	Logarithmi	Sinus
0	523360	29500706	29486992	13714	9986295
1	526265	29455354	29431487	13867	9986143
2	529170	29390307	29376286	14021	9985989
3	532075	29335565	29321389	14176	9985835
4	534980	29281122	29266791	14331	9985680
5	537884	29226973	29212486	14487	9985524
6	540789	29173115	29158471	14644	9985367
7	543694	29119548	29104746	14802	9985209
8	546598	29066270	29051309	14961	9985050
9	549503	29013273	28998152	15121	9984891
10	552407	28960557	28945276	15281	9984731
11	555312	28908117	28892675	15442	9984570
12	558216	28855951	28850347	15604	9984408
13	561120	28804057	28788290	15767	9984245
14	564024	28752430	28736499	15931	9984081
15	566928	28701071	28684975	16096	9983917
16	569832	28649975	28633714	16261	9983752
17	572736	28599142	28582715	16427	9983586
18	575640	28548570	28531976	16594	9983419
19	578544	28498247	28481485	16762	9983251
20	581448	28448177	28431246	16931	9983082
21	584352	28398354	28381253	17101	9982912
22	587256	28348782	28331510	17272	9982742
23	590160	28299459	28282011	17444	9982571
24	593064	28250377	28232761	17616	9982399
25	595967	28201535	28183746	17789	9982226
26	598871	28152930	28134967	17963	9982052
27	601775	28104561	28086423	18138	9981877
28	604678	28056428	28038114	18314	9981701
29	607582	28008424	27990033	18491	9981525
30	610485	27960848	27942178	18670	9981348

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mn	Sinus	Logarithmi	Differentia	Logarithmi	Sinus
30	610435	27960848	27942178	18670	9981348 30
31	613389	27913400	27894552	18848	9981170 29
32	616292	27866180	27847153	19027	9980991 28
33	619196	27819184	27799975	19207	9980811 27
34	622099	27772408	27753020	19388	9980631 26
35	625002	27725848	27706278	19570	9980450 25
36	627905	27679504	27659752	19752	9980268 24
37	630808	27633374	27613439	19935	9980085 23
38	633711	27587457	27567338	20119	9979901 22
39	636614	27541753	27521449	20304	9979716 21
40	639517	27496257	27475767	20490	9979530 20
41	642420	27450968	27430291	20677	9979343 19
42	645323	27405885	27385020	20865	9979156 18
43	648226	27361003	27339950	21053	9978968 17
44	651129	27316323	27295081	21242	9978779 16
45	654031	27271843	27250411	21432	9978588 15
46	656934	27227563	27205940	21623	9978398 14
47	659837	27183476	27161661	21815	9978207 13
48	662739	27139581	27117573	22008	9978015 12
49	665642	27095878	27073676	22202	9977822 11
50	668544	27052373	27029976	22397	9977628 10
51	671447	27009057	26986465	22592	9977433 9
52	674349	26965916	26943138	22788	9977237 8
53	677251	26922980	26899995	22985	9977040 7
54	680153	26880218	26857035	23183	9976843 6
55	683055	26837639	26814257	23382	9976645 5
56	685957	26795243	26771661	23582	9976446 4
57	688859	26753027	26729244	23783	9976246 3
58	691761	26710988	26687003	23985	9976045 2
59	694663	26669126	26644919	24187	9975843 1
60	697565	26627442	26603052	24390	9975640 0

min	Sinus	Logarithmi	Diff. secunda	Logarithmi	Sinus
0	697565	26627442	26623052	24390	9975640
1	700467	26585929	26561335	24594	9975437
2	703369	26544587	26519788	24799	9975233
3	706270	26503416	26478411	25005	9975028
4	709172	26462418	26437207	25211	9974822
5	712073	26421589	26396171	25418	9974615
6	714975	26380927	26355301	25626	9974408
7	717876	26340428	26314593	25835	9974200
8	720777	26300094	26274050	26044	9973991
9	723678	26259923	26233669	26254	9973781
10	726579	26219913	26193448	26465	9973570
11	729480	26180067	26153390	26677	9973359
12	732381	26140377	26113487	26890	9973148
13	735282	26100842	26073738	27104	9972937
14	738183	26061465	26034146	27319	9972725
15	741084	26022244	25994709	27535	9972512
16	743985	25983176	25955424	27752	9972299
17	746886	25944260	25916290	27970	9972086
18	749787	25905496	25877308	28188	9971871
19	752688	25866884	25838477	28407	9971657
20	755588	25828423	25799796	28627	9971441
21	758489	25790110	25761262	28848	9971224
22	761389	25751942	25722872	29070	9971007
23	764290	25713920	25684727	29293	9970789
24	767180	25676043	25646527	29516	9970571
25	770090	25638310	25608577	29740	9970352
26	772991	25600722	25570757	29965	9970133
27	775891	25563272	25533082	30191	9969913
28	778791	25525966	25495548	30418	9969692
29	781691	25488798	25458152	30646	9969471
30	784591	25451769	25420894	30875	9969250

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min	Sinus	Logarithmi	Differ. 1.	Logarithmi	Sinus	
30	73591	2545169	2542894	30875	9969173	30
31	73749	25454876	2543772	31104	9968944	29
32	73909	25458119	25446785	31314	9968715	28
33	74071	25461498	25456043	31565	9968485	27
34	74236	25465013	25465516	31797	9968254	26
35	74400	25468662	2547532	32010	9968022	25
36	74569	25472442	25485478	32264	9967789	24
37	74739	25476355	25495957	32498	9967555	23
38	74907	25480399	25506666	32733	9967320	22
39	75078	25484571	25517602	32969	9967085	21
40	75251	25488870	25528764	33206	9966849	20
41	75426	25493298	25540154	33444	9966612	19
42	75603	25497853	25551770	33683	9966374	18
43	75781	25502533	25563610	33923	9966135	17
44	75961	25507340	25575677	34163	9965895	16
45	76142	25512272	25587966	34404	9965655	15
46	76324	25517326	25599480	34646	9965414	14
47	76507	25522502	25611213	34889	9965172	13
48	76691	25527809	25623166	35133	9964929	12
49	76876	25533249	25635341	35378	9964685	11
50	77062	25538821	25647738	35623	9964440	10
51	77249	25544526	25660351	35869	9964194	9
52	77437	25550364	25673180	36116	9963948	8
53	77626	25556336	25686226	36364	9963701	7
54	77816	25562443	25699497	36613	9963453	6
55	78007	25568685	25713003	36863	9963204	5
56	78199	25575063	25726735	37114	9962954	4
57	78392	25581587	25740693	37366	9962702	3
58	78586	25588258	25754879	37619	9962452	2
59	78781	25595076	25769298	37872	9962200	1
60	78977	25602042	25783952	38126	9961947	0

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mi.	Sinus	Logarithm	D. Centis	Logarithm	Sinus
0	871557	24400178	24362452	40125	995817
1	874155	24367384	24429073	38381	9961693
2	877353	24334302	24495665	38657	9961438
3	880250	24301229	24262435	38924	9961183
4	883148	24268467	24229316	39191	9960927
5	886045	24235712	24196303	39458	9960670
6	888943	24203064	24163396	39668	9960412
7	891840	24170523	24130595	39928	9960153
8	894737	24138081	4097900	40189	9959893
9	897634	24105760	24065309	40451	9959632
10	900531	24073540	24032827	40713	9959370
11	903428	24041422	24000446	40976	9959107
12	906325	24009408	23968168	41240	9958844
13	909222	23977495	23935990	41505	9958581
14	912119	23945985	23903914	41771	9958315
15	915016	23913978	23871940	42038	9958049
16	917911	23882373	23840067	42306	9957782
17	920809	23850867	23808292	42575	9957515
18	923706	23819460	23776615	42845	9957247
19	926602	23788153	23745038	43115	9956978
20	929498	23756943	23713557	43386	9956708
21	932395	23725832	23682174	43658	9956437
22	935291	23694818	23650887	43931	9956165
23	938187	23663900	23619695	44204	9955892
24	941083	23633080	23588601	44477	9955619
25	943979	23602355	23557601	44754	9955346
26	946875	23571725	23526695	45032	9955071
27	949771	23541190	23495883	45312	9954797
28	952667	23510748	23465163	45591	9954523
29	955563	23480399	23434535	45871	9954248
30	958458	23450143	23403999	46151	9953972



min	Sinus	Logarithmus	Differentia	Logarithmus	Sinus
30	958458	23450143	2340999	46144	9953962 30
31	961354	23419980	2337356	46424	9953683 29
32	964249	23389908	23343203	46705	9953403 28
33	967144	23359927	23312940	46987	9953122 27
34	970039	23330036	23282766	47270	9952840 26
35	972934	23300235	23252681	47554	9952557 25
36	975829	23270525	23222686	47839	9952274 24
37	978724	23240923	23192778	48125	9951990 23
38	981619	23211363	23162956	48411	9951705 22
39	984514	23181920	23133220	48700	9951419 21
40	987408	23152560	23103572	48988	9951132 20
41	990303	23123287	23074010	49277	9950844 19
42	993198	23094100	23044533	49567	9950555 18
43	996092	23064999	23015141	49858	9950266 17
44	998987	23035985	22985836	50149	9949976 16
45	1001881	23007056	22956615	50441	9949685 15
46	1004775	22978212	22927478	50734	9949393 14
47	1007669	22949449	22898421	51028	9949100 13
48	1010563	22920769	22869446	51323	9948807 12
49	1013457	22892172	22840553	51619	9948513 11
50	1016351	22863658	22811742	51916	9948218 10
51	1019245	22835227	22783013	52214	9947922 9
52	1022139	22806878	22754366	52512	9947625 8
53	1025032	22778609	22725798	52811	9947327 7
54	1027926	22750420	22697309	53111	9947028 6
55	1030819	22722311	22668899	53412	9946729 5
56	1033713	22694283	22640569	53714	9946429 4
57	1036606	22666333	22612316	54017	9946128 3
58	1039499	22638461	22584140	54321	9945826 2
59	1042392	22610667	22556041	54626	9945523 1
60	1045285	22582951	22528019	54932	9945219 0

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n	Sinus	Logarithmi	Differentia	Logarithmi	Sinus	
0	1045285	22582951	22528019	54931	945285	
1	1048178	22555313	22500075	55238	9945284	59
2	1051071	22527752	22472207	55545	9944909	58
3	1053964	22500267	22444414	55853	9944103	57
4	1056857	22472859	22416697	56162	9943990	56
5	1059749	22445527	22389055	56471	9943688	55
6	1062641	22418272	22361490	56782	9943379	54
7	1065534	22391091	22333998	57093	9943069	53
8	1068426	22363954	22306579	57405	9942759	52
9	1071318	22336951	22279233	57718	9942450	51
10	1074210	22309991	22251959	58032	9942139	50
11	1077102	22283104	22224757	58347	9941823	49
12	1079994	22256290	22197627	58663	9941509	48
13	1082886	22229549	22170570	58979	9941194	47
14	1085778	22202888	22143585	59296	9940879	46
15	1088669	22176285	22116671	59614	9940563	45
16	1091561	22149762	22089829	59933	9940246	44
17	1094452	22123308	22063055	60253	9939928	43
18	1097344	22096925	22036351	60574	9939609	42
19	1100235	22070612	22009717	60895	9939290	41
20	1103126	22044368	21983151	61217	9938970	40
21	1106017	22018195	21956655	61540	9938649	39
22	1108908	21992090	21930226	61864	9938327	38
23	1111799	21966054	21903865	62189	9938004	37
24	1114690	21940086	21877571	62515	9937680	36
25	1117580	21914186	21851344	62842	9937355	35
26	1120471	21888345	21825185	63170	9937029	34
27	1123361	21862590	21799091	63499	9936701	33
28	1126251	21836892	21773064	63828	9936376	32
29	1129142	21811261	21747103	64158	9936048	31
30	1132032	21785693	21721209	64489	9935719	30

min	Sinus	Logarithmi	Difference	Logarithmi	Sinus
30	1132032	217859	217212	64489	995719
31	113222	21760199	2695378	64821	995889
32	1132812	21744767	21609613	65152	995958
33	1140702	21709400	2643912	65483	9934727
34	1143591	21684100	2168278	65822	9934395
35	1146482	21658865	21592708	66157	9934012
36	114972	21633695	21567202	66493	9933728
37	1152261	21608586	21541756	66830	9933353
38	1155151	21583530	21516372	67168	9933017
39	1158040	21558557	21490950	67507	9932621
40	1160929	21533639	21465793	67846	9932184
41	1163818	21508781	21440595	68186	9931746
42	1166707	21483986	21415459	68527	9931307
43	1169596	21459254	21390385	68869	9930867
44	1172485	21434585	21365373	69212	9930426
45	1175374	21409979	21340423	69556	9930085
46	1178263	21385434	21315533	69901	9929643
47	1181151	21360949	21290702	70247	9929200
48	1184040	21336524	21265931	70593	9928756
49	1186928	21312160	21241210	70940	9928311
50	1189816	21287855	21216567	71288	9927865
51	1192704	21263609	21191972	71637	9927418
52	1195592	21239423	21167446	71987	9926971
53	1198480	21215297	21142959	72338	9926529
54	1201368	21191230	21118540	72690	9926084
55	1204255	21167222	21094179	73044	9925639
56	1207143	21143273	21069877	73396	9925193
57	1210031	21119381	21045631	73750	9924746
58	1212918	21095546	21021441	74105	9924299
59	1215806	21071769	20997308	74461	9923851
60	1218693	21048049	20973231	74818	9923401

min	Sinus	Logarithmi	Differentia	Logarithmi	Sinus
0	1218693	21048049	20973231	74818	992546160
1	1221580	21043385	20949209	75176	9925059
2	122447	21000779	20925245	75534	992475038
3	1227354	20977230	20901337	75893	992439357
4	1230241	20953738	20877485	76253	99240356
5	1233128	20930302	20853688	76614	992367855
6	1236015	20906922	20829946	76976	9923331954
7	1238901	20883595	20806256	77339	992299593
8	1241788	20860323	20782620	77703	992265952
9	1244674	20837106	20759038	78068	992232351
10	1247560	20813945	20735512	78433	9921987450
11	1250446	20790838	20712039	78799	9921651149
12	1253332	20767785	20688619	79166	9921314748
13	1256218	20744785	20665251	79534	9920978247
14	1259104	20721838	20641915	79903	9920641646
15	1261990	20698946	20618946	80272	9920304945
16	1264876	20676107	20595465	80642	9919968244
17	1267761	20653321	20572308	81013	9919631443
18	1270647	20630588	20549203	81385	9919294442
19	1273532	20607906	20526148	81758	9918957541
20	1276417	20585278	20503146	82132	9918620640
21	1279302	20562701	20480194	82507	9918283739
22	1282187	20540176	20457293	82883	9917946838
23	1285072	20517703	20434444	83259	9917609937
24	1287957	20495281	20411645	83636	9917273036
25	1290841	20472909	20388895	84014	9916936135
26	1293726	20450587	20366194	84393	9916599234
27	1296610	20428316	20343543	84773	9916262333
28	1299494	20406096	20320942	85154	9915925432
29	1302378	20383925	20298389	85536	9915588531
	1305262	20361805	20275887	85919	9915251630

$n$	Sinus	Logarithmi	Differentia	Logarithmi	Sinus
30	1305262	20361806	20275837	85919	9914449
31	1308146	20339737	20253435	86302	9914069
32	1311030	20317717	20231031	8686	9913688
33	1313914	20295746	2020865	87071	9913306
34	1316798	20273822	20186365	87457	9912923
35	1319681	20251947	20164103	87844	9912540
36	1322564	20230120	20141888	88212	9912156
37	1325447	20208341	20119710	88621	9911771
38	1328330	20186611	20097600	89011	9911385
39	1331213	20164931	20075530	89401	9910998
40	1334096	20143301	20053509	89792	9910610
41	1336979	20121717	20031533	90184	9910221
42	1339862	20100180	20009603	90577	9909832
43	1342744	20078689	19987718	90971	9909442
44	1345627	20057245	19965880	91365	9909051
45	1348509	20035846	19944086	91760	9908659
46	1351392	20014494	19922338	92156	9908266
47	1354274	19993189	19900636	92553	9907873
48	1357156	19971931	19878980	92951	9907479
49	1360038	19950718	19857368	93350	9907084
50	1362920	19929552	19835852	93750	9906688
51	1365802	19908432	19814281	94151	9906291
52	1368683	19887357	19792805	94552	9905893
53	1371564	19866327	19771373	94954	9905494
54	1374446	19845341	19749984	95357	9905095
55	1377327	19824400	19728639	95761	9904695
56	1380208	19803504	19707338	96156	9904294
57	1383089	19782652	19686080	96572	9903892
58	1385970	19761844	19664865	96979	9903489
59	1388851	19741081	19643694	97387	9903085
60	1391731	19720362	19622566	97796	9902681

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Gr.	Sinus	Logarithmi	Differentia	Logarithmi	Sinus
0	1391731	19720362	19622566	97796	9902681 60
1	1394612	19699687	19601482	98205	9902276 59
2	1397492	19679054	19580439	98615	9901870 58
3	1400373	19658464	19559438	99026	9901463 57
4	1403253	19637917	19538479	99438	9901055 56
5	1406133	19617413	19517562	99851	9900646 55
6	1409013	19596952	19496687	100265	9900237 54
7	1411893	19576535	19475756	100679	9899827 53
8	1414772	19556160	19455066	101094	9899416 52
9	1417652	19535827	19434317	101510	9899004 51
10	1420531	19515538	19413611	101927	9898591 50
11	1423410	19495290	19392945	102345	9898177 49
12	1426289	19475084	19372329	102764	9897762 48
13	1429168	19454918	19351734	103184	9897347 47
14	1432047	19434794	19331190	103604	9896931 46
15	1434926	19414711	19310686	104025	9896514 45
16	1437805	19394669	19290222	104447	9896096 44
17	1440684	19374668	19269798	104870	9895677 43
18	1443562	19354708	19249414	105294	9895257 42
19	1446441	19334787	19229068	105719	9894837 41
20	1449319	19314908	19208763	106145	9894416 40
21	1452197	19295052	19188501	106571	9893994 39
22	1455075	19275275	19168277	106998	9893571 38
23	1457953	19255517	19148091	107426	9893147 37
24	1460831	19235798	19127943	107855	9892723 36
25	1463708	19216118	19107833	108285	9892298 35
26	1466586	19196477	19087761	108716	9891872 34
27	1469463	19176875	19067727	109148	9891445 33
28	1472340	19157313	19047732	109581	9891017 32
29	1475217	19137792	19027777	110015	9890588 31
30	1478094	19118310	19007861	110449	9890159 30

<div style="display: flex; align-items: center; justify-content: center;"> <div style="margin-right: 10px;">T</div> <div style="border-top: 1px solid black; width: 50px; height: 10px; margin-left: 10px;"></div> </div>					
mi.	Sinus	Logarithmi	Differentia	Logarithmi	Sinus
30	1473094	191183.0	19007861	110449	9890119
31	1480971	19093865	18987981	110884	9889719
32	1483843	19079459	18968139	111320	9889298
33	1486724	19066091	18950334	111757	9888861
34	1489601	19040761	18928566	112195	9888433
35	1492477	19021469	18908835	112634	9887999
36	1495353	19000215	18889141	113074	9887564
37	1498229	18973299	18869485	113514	9887128
38	1501105	18963822	18849867	113955	9886692
39	1503981	18944682	18830285	114397	9886255
40	1506857	18925581	18810741	114840	9885817
41	1509733	18906517	18791233	115284	9885378
42	1512608	18887489	18771760	115729	9884938
43	1515484	18868498	18752323	116175	9884498
44	1518359	18849543	18732921	116622	9884057
45	1521234	18830625	18713556	117069	9883615
46	1524109	18811744	18694227	117517	9883172
47	1526984	18792899	18674933	117966	9882728
48	1529859	18774099	18655674	118416	9882283
49	1532734	18755313	18636451	118867	9881838
50	1535608	18736581	18617262	119319	9881392
51	1538482	18717832	18598111	119771	9880947
52	1541356	18699218	18578994	120224	9880497
53	1544230	18680589	18559911	120678	9880043
54	1547104	18661995	18540862	121133	9879598
55	1549978	18643437	18521848	121589	9879148
56	1552852	18624915	18502869	122046	9878697
57	1555725	18606428	18483924	122504	9878245
58	1558599	18587975	18465013	122961	9877792
59	1561472	18569557	18446136	123421	9877338
60	1564345	18551174	18427293	123881	9876883



min	Sinus	Logarithmi	Differencia	Logarithmi	Sinus
0	697565	26627442	26603052	24390	9975640 63
1	700467	26585929	26561335	24594	9975437 59
2	703369	26544587	26519788	24799	9975233 58
3	706270	26503416	26478411	25005	9975028 57
4	709172	26462418	26437207	25211	9974822 56
5	712073	26421589	26396171	25418	9974615 55
6	714975	26380927	26355301	25626	9974408 54
7	717876	26340428	26314593	25835	9974200 53
8	720777	26300094	26274050	26044	9973991 52
9	723678	26259923	26233669	26254	9973781 51
10	726579	26219913	26193448	26465	9973570 50
11	729480	26180067	26153390	26677	9973358 49
12	732381	26140377	26113487	26890	9973145 48
13	735282	26100842	26073738	27104	9972931 47
14	738183	26061465	26034146	27319	9972717 46
15	741084	26022244	25994709	27535	9972502 45
16	743985	25983176	25955424	27752	9972286 44
17	746886	25944260	25916290	27970	9972069 43
18	749787	25905496	25877308	28188	9971851 42
19	752688	25866884	25838477	28407	9971633 41
20	755588	25828423	25799796	28627	9971414 40
21	758489	25790110	25751262	28848	9971194 39
22	761389	25751942	25712872	29070	9970973 38
23	764290	25713920	25674627	29293	9970751 37
24	767180	25676043	25636527	29516	9970528 36
25	770090	25638310	25608573	29740	9970304 35
26	772991	25600722	25570757	29965	9970079 34
27	775891	25563271	25533082	30191	9969854 33
28	778791	25525966	25495548	30418	9969628 32
29	781691	25488798	25458152	30646	9969401 31
30	784591	25451769	25420894	30875	9969173 30

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min	Sinus	Logarithmi	Differentia	Logarithmi	Sinus	
30	734591	2545169	25420894	30875	9969173	30
31	78749	25414876	25383772	31104	9968944	29
32	790191	25378119	25346785	31314	9968715	28
33	73291	2541498	25109943	31565	9968485	27
34	796191	25305013	25273216	31797	9968254	26
35	799090	25263662	25236632	32030	9968022	25
36	801990	2522442	25200178	32264	9967789	24
37	804889	25196355	25163857	32498	9967555	23
38	807782	25160399	25127666	32733	9967320	22
39	810683	25124571	25091602	32969	9967085	21
40	813587	25088870	25055464	33206	9966849	20
41	816486	25053298	25019854	33444	9966612	19
42	819385	25017853	24984170	33683	9966374	18
43	822285	24982533	24948610	33923	9966135	17
44	825183	24947340	24913177	34163	9965895	16
45	828082	24912172	2487866	34404	9965655	15
46	830981	24877326	24844680	34646	9965414	14
47	833880	24842502	248107613	34889	9965172	13
48	836778	24807799	24772666	35133	9964929	12
49	839677	24773219	24737841	35378	9964685	11
50	842575	24738761	24703138	35623	9964440	10
51	845474	24704430	24668551	35869	9964194	9
52	848372	24670196	24634080	36116	9963948	8
53	851271	24636090	24599726	36364	9963701	7
54	854169	24601100	24565437	36613	9963453	6
55	857067	24568228	24531365	36863	9963204	5
56	859965	24534473	24497350	37114	9962954	4
57	862863	24500829	24463463	37366	9962703	3
58	865761	24467298	24429679	37619	9962452	2
59	868659	24433880	24396008	37872	9962200	1
60	871557	24400578	24362452	38126	9961947	0

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mi.	Sinus	Tangentibus	Secantibus	Cotangentibus	Cosecantibus
0	871557	2440078	24362452	37126	911047
1	874755	24377384	24229073	38331	991693
2	877355	2435402	24295665	38637	9961438
3	880250	24301329	24262435	3894	9961183
4	883148	24268467	24229316	39151	9960927
5	886045	24235712	24196303	39407	9960670
6	888943	24203064	24163396	39668	9960412
7	891840	24170523	24130595	39928	9960153
8	894737	24138081	24097970	40189	9959893
9	897634	24105760	24065309	40451	9959632
10	900531	24073540	24032827	40713	9959370
11	903428	24041422	24000446	40976	9959107
12	906325	24009408	23968168	41240	9958844
13	909223	23977495	23935990	41505	9958580
14	912119	23945085	23903914	41771	9958315
15	915016	23913078	23871940	42038	9958049
16	91791	23881373	23840067	42306	9957782
17	920809	23850867	23808292	42575	9957515
18	923706	23820460	23776615	42845	9957247
19	926602	23788153	23745038	43115	9956978
20	929498	23756943	23713557	43386	9956708
21	932395	23725832	23682174	43658	9956437
22	935291	23694818	23650887	43931	9956165
23	938187	23663900	23619695	44200	9955893
24	941083	23633080	23588601	44479	9955620
25	943979	23602355	23557601	44754	9955346
26	946875	23571725	23526695	45030	9955071
27	949771	23541190	23495884	45307	9954795
28	952667	23510748	23465163	45581	9954518
29	955563	23480399	23434535	45864	9954240
30	958458	23450145	23403900	46144	9953962

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Gr.	Sinus	Logarithmi	Differentia	Logarithmi	Sinus
30	958458	23450143	23450999	46144	9953962
31	961354	234519980	23373556	46424	9953683
32	964249	23385908	23343203	46705	9953403
33	967144	23359927	23312940	46987	9953122
34	970039	23330036	23282766	47270	9952840
35	972934	23300235	23252681	47554	9952557
36	975829	23270525	23222686	47839	9952274
37	978724	23240923	23192778	48125	9951990
38	981619	23211363	23162956	48412	9951705
39	984514	23181920	23133120	48700	9951419
40	987408	23152560	23103572	48988	9951132
41	990303	23123287	23074010	49277	9950844
42	993199	23094100	23044533	49567	9950555
43	996092	23064999	23015141	49858	9950266
44	998987	23035985	22985836	50149	9949976
45	1001881	23007056	22956615	50441	9949685
46	1004775	22978212	22927478	50734	9949393
47	1007669	22949449	22898421	51028	9949100
48	1010563	22920769	22869446	51323	9948807
49	1013457	22892172	22840553	51619	9948513
50	1016351	22863658	22811742	51916	9948218
51	1019245	22835227	22783013	52214	9947922
52	1022139	22806878	22754366	52512	9947625
53	1025032	22778609	22725798	52811	9947327
54	1027926	22750420	22697309	53111	9947028
55	1030819	22722311	22668899	53412	9946729
56	1033713	22694283	22640569	53714	9946429
57	1036606	22666333	22612316	54017	9946128
58	1039499	22638461	22584140	54321	9945826
59	1042392	22610667	22556041	54626	9945523
60	1045285	22582951	22528019	54932	9945219

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Gr.	Sinus	Logarithmi	Differentia	Logarithmi	Sinus
0	1045285	22582951	22528019	54932	9945215
1	1048178	22555314	22500075	55238	9944924
2	1051071	22527752	22472207	55545	9944639
3	1053964	22500267	22444414	55853	9944303
4	1056857	22472859	22416697	56162	9943996
5	1059749	22445527	22389055	56471	9943688
6	1062642	22418272	22361490	56782	9943379
7	1065534	22391091	22333998	57093	9943069
8	1068426	22363904	22306579	57405	9942759
9	1071318	22336951	22279233	57718	9942448
10	1074210	22309991	22251959	58032	9942136
11	1077102	22283104	22224757	58347	9941823
12	1079994	22256290	22197627	58663	9941509
13	1082886	22229549	22170570	58979	9941194
14	1085778	22202881	22143585	59296	9940879
15	1088669	22176285	22116671	59614	9940563
16	1091561	22149762	22089829	59933	9940246
17	1094452	22123308	22063055	60253	9939928
18	1097344	22096925	22036351	60574	9939609
19	1100235	22070612	22009717	60895	9939290
20	1103126	22044368	21983151	61217	9938970
21	1106017	22018195	21956655	61540	9938649
22	1108908	21992090	21930226	61864	9938327
23	1111799	21966054	21903865	62189	9938004
24	1114690	21940086	21877571	62515	9937680
25	1117580	21914186	21851344	62842	9937355
26	1120471	21888345	21825185	63170	9937029
27	1123361	21862590	21799091	63499	9936701
28	1126251	21836892	21773064	63828	9936376
29	1129142	21811261	21747103	64158	9936048
30	1132032	21785693	21721209	64489	9935719

min	Sinus	Logarithmi	Difference	Logarithmi	Sinus
30	1132032	217859	21721209	64489	99.5719 30
31	1132922	21760199	2693378	64821	99.5389 29
32	1137812	21734767	21609613	65154	99.5058 28
33	1140702	21709407	2.643912	65488	99.4727 27
34	1143592	21684100	216.8278	65822	99.4395 26
35	1146482	21658865	21592708	66157	99.4062 25
36	1149372	21633695	21567202	66493	99.3728 24
37	1152261	21608586	21541756	66830	99.3393 23
38	1155151	21583430	21516372	67168	99.3057 22
39	1158040	21558257	21490950	67507	99.2721 21
40	1160929	21533039	21465793	67846	99.2384 20
41	1163818	21507881	21440595	68186	99.2046 19
42	1166707	21482686	21415459	68527	99.1707 18
43	1169596	21457454	21390385	68869	99.1367 17
44	1172485	21432185	21365373	69212	99.1026 16
45	1175374	21406979	21340423	69556	99.0685 15
46	1178263	21381734	21315533	69901	99.0343 14
47	1181151	21356449	21290702	70247	99.0000 13
48	1184040	21331124	21265931	70593	99.9656 12
49	1186928	21305760	21241210	70940	99.9311 11
50	1189816	21280355	21216567	71288	99.8965 10
51	1192704	21254909	21191972	71637	99.8618 9
52	1195592	21229423	21167416	7198	99.8271 8
53	1198480	21203897	21142959	72338	99.7929 7
54	1201368	21178330	21118540	72690	99.7574 6
55	1204255	21152722	21094179	73043	99.7224 5
56	1207143	21127073	21069877	73396	99.6873 4
57	1210031	21101381	21045631	73750	99.6521 3
58	1212918	21075646	21021441	74105	99.6169 2
59	1215806	21049869	20997308	74461	99.5816 1
860	1218693	21024049	20973231	74818	99.5461 0

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min	Sinus	Logarithmi	Differentia	Logarithmi	Sinus
0	1218693	21048049	20973231	74818	9925461
1	1221580	21044385	20949209	75175	9925005
2	1224407	21040779	20925245	75534	9924550
3	1227354	20977230	20901337	75893	9924193
4	1230241	20953738	20877485	76253	9923836
5	1233128	20930302	20853688	76614	9923478
6	1236015	20906922	20829946	76976	9923119
7	1238901	20883595	20806256	77339	9922759
8	1241788	20860323	20782610	77703	9922399
9	1244674	20837106	20759038	78068	9922038
10	1247560	20813945	20735512	78433	9921674
11	1250446	20790838	20712039	78799	9921311
12	1253332	20767785	20688619	79166	9920947
13	1256218	20744785	20665251	79534	9920582
14	1259104	20721838	20641915	79903	9920216
15	1261990	20698946	20618946	80272	9919849
16	1264876	20676107	20595945	80642	9919482
17	1267761	20653311	20572908	81013	9919114
18	1270647	20630588	20549923	81385	9918745
19	1273532	20607906	20526948	81758	9918375
20	1276417	20585278	20503946	82132	9918004
21	1279302	20562701	20480994	82507	9917632
22	1282187	20540176	20457993	82883	9917259
23	1285072	20517703	20434944	83259	9916886
24	1287957	20495281	20411945	83636	9916512
25	1290841	20472909	20388895	84014	9916137
26	1293726	20450587	20366194	84393	9915761
27	1296610	20428316	20343543	84773	9915384
28	1299494	20406096	20320942	85154	9915006
29	1302378	20383915	20298389	85536	9914628
	1305262	20361805	20275827	85919	9914243



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<i>m n</i>	<i>Sinus</i>	<i>Logarithmi</i>	<i>Differencia</i>	<i>Logarithmi</i>	<i>Sinus</i>
30	1305262	20361806	20275837	85919	9914449
31	1308146	20339737	20253435	86302	9914069
32	1311030	20317717	20231031	86 86	9913688
33	1313914	20295746	202086 5	87071	9913306
34	1316798	20273822	20186365	87457	9912923
35	1319681	20251947	20164103	87844	9912540
36	1322564	20230120	20141888	882 2	9912156
37	1325447	20208341	20119710	88621	9911771
38	1328330	20186611	20097600	89011	9911385
39	1331213	20164931	20075530	89401	9910998
40	1334096	20143301	20053509	89792	9910610
41	1336979	20121717	20031533	90184	9910221
42	1339862	20100180	20009603	90577	9909832
43	1342744	20078689	19987718	90971	9909442
44	1345627	20057245	19965880	91365	9909051
45	1348509	20035846	19944086	91760	9908659
46	1351392	20014494	19922338	92156	9908266
47	1354274	19993189	19900636	92553	9907873
48	1357156	19971931	19878980	92951	9907479
49	1360038	19950718	19857368	93350	9907084
50	1362920	19929552	19835852	63750	9906688
51	1365802	19908432	19814281	94151	9906291
52	1368683	19887357	19792805	94552	9905893
53	1371564	19866327	19771373	94954	9905494
54	1374446	19845341	19749984	95357	9905095
55	1377327	19824400	19728639	95761	9904695
56	1380208	19803504	19707338	96156	9904294
57	1383089	19782652	19686080	96572	9903892
58	1385970	19761844	19664865	96979	9903489
59	1388851	19741081	19643694	97387	9903085
60	1391731	19720361	19622566	97796	9902681

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min	Sinus	Logarithmi	Differentia	Logarithmi	Sinus
30	1473094	191183.0	19007861	110449	9890159
31	1480971	19093865	13987981	110884	9889719
32	1488843	19079459	18968139	111320	9889293
33	1496724	19066091	189508334	111757	9888861
34	1504601	19040761	18928566	112195	9888433
35	1512477	19021469	18908835	112634	9887999
36	1520353	19002215	18889141	113074	9887564
37	1528229	18982999	18869485	113514	9887128
38	1536105	18963822	18849867	113955	9886692
39	1543981	18944682	18830285	114397	9886255
40	1551857	18925581	18810741	114840	9885817
41	1559733	18906517	18791233	115284	9885378
42	1567608	18887489	18771760	115729	9884938
43	1575484	18868498	18752323	116175	9884498
44	1583359	18849543	18732921	116622	9884057
45	1591234	18830625	18713556	117069	9883615
46	1599109	18811744	18694227	117517	9883172
47	1606984	18792899	18674933	117966	9882728
48	1614859	18774070	18655674	118416	9882283
49	1622734	18755315	18636451	118867	9881838
50	1630608	18736581	18617262	119319	9881392
51	1638482	18717832	18598111	119771	9880945
52	1646356	18699218	18578994	120224	9880497
53	1654230	18680589	18559911	120678	9880048
54	1662104	18661975	18540862	121133	9879598
55	1670078	18643437	18521848	121589	9879148
56	1678052	18624915	18502869	122046	9878697
57	1686025	18606428	18483924	122504	9878245
58	1694000	18587975	18465013	122961	9877792
59	1701974	18569557	18446136	123421	9877338
60	1710045	18551174	18427293	123881	9876883

min	Sinus	Logarithmi	Differentia	Logarithmi	Sinus
0	1564345	18551174	18427193	123881	9876833 60
1	1567218	18532816	18408484	124342	9876427 59
2	1570091	18514111	18389707	124804	9875971 58
3	1572964	18496231	18370164	125267	9875514 57
4	1575837	18477984	18352251	125731	9875056 56
5	1578709	18459772	18333576	126196	9874597 55
6	1581681	18441594	18314933	126661	9874137 54
7	1584451	18423451	18296324	127127	9873677 53
8	1587325	18405341	18277747	127594	9873216 52
9	1590197	18387265	18259203	128062	9872754 51
10	1593069	18369223	18240692	128531	9872291 50
11	159594	18351214	12212213	129001	9871827 49
12	1598812	18333237	18203765	129472	9871362 48
13	1601684	18315294	18185351	129943	9870897 47
14	1604555	18297384	18166969	130415	9870431 46
15	1607426	18279507	18148619	130888	9869964 45
16	1610297	18261663	18130301	131362	9869496 44
17	1613163	18243851	18112014	131837	9869027 43
18	1616038	18226071	18093758	132313	9868557 42
19	1618909	18208223	18075533	132790	9868087 41
20	1621779	18190606	18057338	133268	9867616 40
21	1624649	18172624	18039777	133747	9867144 39
22	1627519	18155273	180221047	134226	9866671 38
23	1630389	18137655	18004948	134706	9866197 37
24	1633259	18120067	17988480	135187	9865722 36
25	1636129	18102511	179716342	135669	9865246 35
26	1638999	18084987	179548335	136152	9864770 34
27	1641868	18067495	179380859	136636	9864293 33
28	1644738	18050004	179212913	137121	9863815 32
29	1647607	18032604	17894997	137607	9863336 31
30	1650476	18015207	178777114	138093	9862856 30

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mn	Sinus	Logarithmi	Differentia	Logarithmi	Sinus †
30	1650476	8015207	17877114	13893	861856 30
31	1653345	1799819	17859259	13858	9851376 29
32	1656214	17980503	17841415	139068	9841895 28
33	1659821	1796398	17823641	139557	9861413 27
34	1661951	1794592	17805875	140047	9860930 26
35	1664819	17928677	17788139	140538	9860446 25
36	1667687	17911463	17770433	141030	9859961 24
37	1670555	17894281	17752759	141521	9859475 23
38	1673423	17877128	17735113	142011	9858989 22
39	1676291	17860006	17717497	142509	9858502 21
40	1679159	17842915	17699911	143004	9858014 20
41	1682027	17825852	17682352	143500	9857525 19
42	1684894	17808820	17664823	143997	9857035 18
43	1687761	17791817	17647322	144495	9856544 17
44	1690628	17774843	17629849	144994	9856053 16
45	1693495	17757899	17612406	145493	9855561 15
46	1696362	17740985	17594992	145993	9855068 14
47	1699229	17724100	17577606	146494	9854574 13
48	1702095	17707244	17560248	146996	9854079 12
49	1704962	17690418	17542919	147499	9853583 11
50	1707828	17673622	17525619	148003	9853087 10
51	1710694	17656856	17508349	148507	9852590 9
52	1713560	17640118	1749106	149012	9852092 8
53	1716426	17623408	17473890	149518	9851593 7
54	1719292	17606726	17456701	150028	9851095 6
55	1722157	17590073	17439540	150533	9850593 5
56	1725022	17573448	17422406	151042	9850092 4
57	1727887	17556851	17405299	151552	9849590 3
58	1730752	17540283	17388210	152061	9849087 2
59	1733617	17523744	17371169	152575	9848583 1
60	1736482	17507234	17354146	153088	9848078 0

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min	Sinus	Logarithmi	Differentia	Logarithmi	Sinus
0	1730482	17507234	17354146	153088	9848078 60
1	1739347	17490751	17337150	153601	9847572 59
2	1742211	17474296	17320181	154115	9847066 58
3	1745075	17457769	17303229	154630	9846559 57
4	1747939	17441470	17286324	155126	9846051 56
5	1750803	17425098	17269435	155663	9845542 55
6	1753667	17408754	17252571	156181	9845032 54
7	1756531	17392438	17235738	156700	9844521 53
8	1759394	17376149	17218929	157220	9844010 52
9	1762258	17359837	17202141	157740	9843498 51
10	1765121	17343652	17185391	158261	9842985 50
11	1767984	17327444	17168661	158783	9842471 49
12	1770847	17311264	17151957	159306	9841956 48
13	1773710	17295109	17135279	159830	9841440 47
14	1776573	17278981	17118617	160355	9840924 46
15	1779435	17262882	17102001	160881	9840407 45
16	1782298	17246809	17085401	161408	9839889 44
17	1785160	17230762	17068827	161935	9839370 43
18	1788022	17214742	17052279	162463	9838850 42
19	1790884	17198749	17035757	162992	9838329 41
20	1793746	17182783	17019261	163522	9837808 40
21	1796608	17166843	17002790	164053	9837286 39
22	1799469	17150929	16986344	164585	9836763 38
23	1802331	17135041	16969924	165117	9836239 37
24	1805192	17119179	16953529	165650	9835714 36
25	1808053	17103342	16937158	166184	9835189 35
26	1810914	17087531	16920812	166719	9834663 34
27	1813774	17071746	16904491	167255	9834136 33
28	1816634	17055987	16888195	167792	9833608 32
29	1819495	17040254	16871924	168330	9833079 31
30	1822355	17024542	16855678	168869	9832549 30

n.	Sinus	Logarithmi	Differentia	Logarithmi	Sinus
30	1822355	17024547	10855678	168869	9832549
31	1825215	17038866	10839458	169408	9832019
32	1828075	17053210	10823201	169948	9831488
33	1830935	17067572	10807090	170489	9830956
34	1833795	17081973	10790942	171031	9830423
35	1836654	17096392	10774818	171574	9829889
36	1839513	17110836	10758718	172118	9829354
37	1842374	17125305	10742642	172663	9828818
38	1845231	17139799	10726590	173209	9828282
39	1848090	17154317	10710561	173756	9827745
40	1850949	17168860	10694557	174303	9827207
41	1853808	17183428	10678577	174851	9826667
42	1856666	17198021	10662611	175400	9826128
43	1859524	17212638	10646668	175950	9825587
44	1862382	17227280	10630749	176501	9825046
45	1865240	17241946	10614853	177052	9824504
46	1868098	17256636	10599030	177606	9823961
47	1870956	17271351	10583191	178160	9823417
48	1873813	17286090	10567375	178715	9822872
49	1876670	17300853	10551583	179270	9822327
50	1879527	17315640	10535814	179826	9821781
51	1882384	17330451	10520068	180383	9821234
52	1885241	17345286	10504345	180941	9820686
53	1888098	17360145	10488645	181500	9820137
54	1890954	17375028	10472968	182060	9819588
55	1893810	17389934	10457313	182621	9819037
56	1896666	17404864	10441681	183183	9818486
57	1899522	17419817	10426072	183745	9817934
58	1902378	17434794	10410486	184308	9817381
59	1905234	17449794	10394922	184872	9816827
60	1908090	17464818	10379381	185437	9816272

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min	Sinus	Logarithmi	Differentia	Logarithmi	Sinus
30	1993679	16126028	15923233	202795	9799247 30
31	1996530	15111742	15908355	203387	9798667 29
32	1999380	16097477	15894497	203980	9798086 28
33	2002230	16083232	15878058	204574	9797504 27
34	2005080	16069008	15863839	205169	9796921 26
35	2007930	16054805	15849040	205765	9796337 25
36	2010780	16040623	15834261	206362	9795753 24
37	2013629	16026462	15819502	206960	9795168 23
38	2016478	16012322	15804764	207558	9794584 22
39	2019327	15998203	15790046	208157	9793999 21
40	2022176	15984105	15775348	208757	9793407 20
41	2025025	15970028	15760670	209358	9792818 19
42	2027874	15955922	15746012	209960	9792228 18
43	2030722	15941936	15731373	210163	9791638 17
44	2033570	15927921	15716754	211167	9791048 16
45	2036418	15913926	15702154	211772	9790455 15
46	2039266	15899951	15687573	212378	9789862 14
47	2042114	15885996	15673012	212984	9789268 13
48	2044962	15872062	15658461	213591	9788674 12
49	2047809	15858148	15643949	214199	9788079 11
50	2050656	15844254	15629446	214808	9787483 10
51	2053503	15830371	15614953	215418	9786886 9
52	2056350	15816518	15600489	216029	9786288 8
53	2059197	15802685	15586044	216641	9785689 7
54	2062043	15788871	15571617	217254	9785090 6
55	2064889	15775077	15557210	217867	9784490 5
56	2067735	15761303	15542822	218481	9783889 4
57	2070581	15747559	15528463	219096	9783287 3
58	2073427	15733824	15514112	219712	9782684 2
59	2076272	15720109	15499780	220329	9782080 1
60	2079117	15706414	15485467	220947	9781476 0



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min	Sinus	Logarithmi	Differentia	Logarithmi	Sinus	
0	2079117	15706414	15485467	220947	9781476	60
1	2081962	15692738	15471172	221566	9780871	59
2	2084807	15679082	15456896	222186	9780265	58
3	2087652	15665445	15442639	222806	9779658	57
4	2090497	15651828	15428401	223427	9779050	56
5	2093342	15638230	15414181	224049	9778442	55
6	2096180	15624651	15399979	224672	9777833	54
7	2099030	15611092	15385796	225296	9777223	53
8	2101874	15597552	15371631	225921	9776612	52
9	2104718	15584031	15357484	226547	9776000	51
10	2107562	15570530	15343356	227174	9775387	50
11	2110405	15557048	15329246	227802	9774773	49
12	2113248	15543585	15315155	228430	9774159	48
13	2116091	15530141	15301082	229052	9773544	47
14	2118934	15516715	15287026	229689	9772928	46
15	2121777	15503308	15272988	230320	9772311	45
16	2124620	15489920	15258968	230953	9771693	44
17	2127462	15476551	15244966	231585	9771075	43
18	2130304	15463200	15230981	232219	9770456	42
19	2133146	15449868	15217014	232854	9769836	41
20	2135988	15436554	15203064	233490	9769215	40
21	2138830	15423259	15189133	234126	9768593	39
22	2141671	15409982	15175219	234763	9767970	38
23	2144512	15396724	15161323	235401	9767347	37
24	2147353	15383484	15147444	236040	9766723	36
25	2150194	15370262	15133582	236680	9766098	35
26	2153035	15357059	15119738	237321	9765472	34
27	2155876	15343874	15105911	237963	9764845	33
28	2158716	15330708	15092102	238606	9764217	32
29	2161556	15317560	15078310	239250	9763589	31
30	2164396	15304430	15064535	239895	9762963	30

12 min	Sinus	Logarithmi	Differentia	Logarithmi	Sinus
30	2164396	15304430	15064535	239895	9762960
31	2167236	15291319	15050779	240540	9762330
32	2170076	15278226	15037040	241186	9761699
33	2172916	15265150	15023317	241833	9761067
34	2175755	15252092	15009611	242481	9760435
35	2178594	15239052	14995922	243130	9759802
36	2181433	15226030	14982250	243780	9759168
37	2184272	15213025	14968594	244431	9758533
38	2187111	15200038	14954955	245083	9757897
39	2189949	15187068	14941333	245735	9757260
40	2192787	15174116	14927728	246388	9756622
41	2195625	15161182	14914140	247042	9755985
42	2198463	15148266	14900569	249668	9755346
43	2201300	15135367	14887014	248353	9754706
44	2204137	15122485	14873475	249010	9754065
45	2206974	15109621	14859953	249668	9753423
46	2209811	15096774	14846447	250327	9752781
47	2212648	15083944	14832957	250987	9752138
48	2215485	15071132	14819485	251647	9751494
49	2218322	15058337	14806029	252308	9750849
50	2221158	15045559	14792589	252970	9750203
51	2223994	15032799	14779166	253633	9749557
52	2226830	15020056	14765759	254297	9748910
53	2229666	15007330	14752368	254962	9748262
54	2232502	14994620	14738992	255628	9747613
55	2235337	14981927	14725632	256295	9746963
56	2238172	14969251	14712288	256963	9746312
57	2241007	14956592	14698960	257632	9745660
58	2243842	14943950	14685649	258301	9745008
59	2246677	14931325	14672354	258971	9744355
60	2249511	14918717	14659075	259642	9743700

m.	Sinus	Logarithmi	Differentia	Logarithmi	Sinus
0	2249511	14918717	14659075	259642	9743700
1	2252345	14906126	14645812	260314	9743045
2	2255179	14893551	14632564	260987	9742389
3	2258013	14880993	14619332	261661	9741733
4	2260847	14868452	14606116	262336	9741076
5	2263680	14855927	14592916	263011	9740418
6	2266513	14843419	14579732	263687	9739759
7	2269346	14830928	14566564	264364	9739099
8	2271179	14818453	14553411	265042	9738439
9	2275012	14805995	14540274	265721	9737778
10	2277844	14793553	14527152	266401	9737116
11	2280676	14781128	14514046	267082	9736453
12	2283508	14768719	14500955	267764	9735789
13	2286340	14756325	14487878	268447	9735124
14	2289172	14743917	14474817	269130	9734459
15	2292004	14731585	14461771	269814	9733793
16	2294835	14719239	14448740	270499	9733126
17	2297666	14706909	14435724	271185	9732458
18	2300497	14694595	14422723	271872	9731789
19	2303328	14682297	14409747	272560	9731120
20	2306159	14670015	14396766	273249	9730450
21	2308949	14657749	14383810	273939	9729779
22	2311819	14645498	14370868	274630	9729107
23	2314649	14633263	14357941	275322	9728434
24	2317479	14621044	14345019	276015	9727760
25	2320309	14608841	14332132	276709	9727085
26	2323138	14596654	14319250	277404	9726409
27	2325967	14584483	14306384	278099	9725733
28	2328799	14572328	14293533	278795	9725056
29	2331625	14560189	14280697	279492	9724378
30	2334454	14548066	14267876	280190	9723699

13					
min	Sinus	Logarithmi	Difference	Logarithmi	Sinus
30	2334454	14548066	14267876	280190	9723699
31	2337282	14535958	14255069	280889	9723020
32	2340110	14523866	14242277	281589	9722340
33	2342938	14511789	14229500	282289	9721659
34	2345766	14499727	14216737	282990	9720977
35	2348594	14487680	14203988	283692	9720294
36	2351421	14475648	14191253	384395	9719610
37	2354248	14463632	14178533	285099	9718926
38	2357075	14451631	14165827	285804	9718241
39	2359902	14439645	14153135	286510	9717555
40	2362729	14427674	14140457	287217	9716868
41	2365555	14415718	14127794	287925	9716180
42	2368381	14403777	14115143	288634	9715491
43	2371207	14391851	14102507	289344	9714802
44	2374033	14379941	14089887	290054	9714112
45	2376859	14368046	14077281	290765	9713421
46	2379684	14356166	14064689	291477	9712729
47	2382509	14344301	14452111	292190	9712036
48	2385334	14332451	14039547	292904	9711343
49	2388159	14320616	14026997	293619	9710649
50	2390983	14308796	14014461	294335	9709954
51	2393808	14296991	14001939	295052	9709258
52	2396632	14285200	13989430	295770	9708561
53	2399456	14273424	13976935	296489	9707863
54	2402280	14261662	13964453	297209	9707165
55	2405104	14249915	13951986	297929	9706466
56	2407927	14238182	13939532	298650	9705766
57	2410750	14226464	13927091	299371	9705065
58	2413573	14214761	13914666	300095	9704363
59	2416396	14203072	13902253	300819	9703660
60	2419219	14191398	13889854	301544	9702957

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min	Sinus	Logarithmi	Differentia	Logarithmi	Sinus	
0	2419219	14191398	13889854	301544	9702957	60
1	2422041	14179738	13877468	302270	9702253	59
2	2423863	14168092	13865095	302997	9701548	58
3	2427685	14156461	13852737	303724	9700842	57
4	2430507	14144844	13840392	304452	9700135	56
5	2433329	14133242	13828061	305181	9699428	55
6	2436150	14121654	13815743	305911	9698720	54
7	2438971	14110081	13803439	306642	9698011	53
8	2441792	14098522	13791148	307374	9697301	52
9	2444613	14086977	13778870	308107	9696590	51
10	2447434	14075447	13766606	308841	9695879	50
11	2450254	14063931	13754355	309576	9695167	49
12	2453074	14052429	13742117	310312	9694454	48
13	2455894	14040940	13729891	311049	9693740	47
14	2458714	14029465	13717679	311786	9693025	46
15	2461533	14018004	13705480	312524	9692309	45
16	2464352	14006557	13693294	313263	9691593	44
17	2467171	13995124	13681121	314003	9690876	43
18	2469990	13983705	13668961	314744	9690158	42
19	2472809	13972300	13656814	315486	9689439	41
20	2475628	13960909	13644680	316229	9688719	40
21	2478446	13949532	13632559	316973	9687998	39
22	2481264	13938168	13620450	317718	9687277	38
23	2484082	13926828	13608354	318464	9686555	37
24	2486900	13915482	13596272	319210	9685832	36
25	2489717	13904159	13584202	319957	9685108	35
26	2492534	13892850	13572145	320705	9684383	34
27	2495351	13881554	13560100	321454	9683657	33
28	2498168	13870272	13548068	322204	9682931	32
29	2500984	13859004	13536049	322955	9682204	31
30	2503800	13847749	13524042	323707	9681476	30

num	Sinus	Logarithmi	Differentia	Logarithmi	Sinus	
30	2503800	13847749	13524042	323707	9681476	30
31	2506626	13836508	13512048	324460	9680747	29
32	2509431	13825280	13500066	325214	9680017	28
33	2512248	13814066	13488097	325969	9679287	27
34	2515064	13802865	13476141	326724	9678556	26
35	2517879	13791678	13464198	327480	9677824	25
36	2520694	13780504	13452267	328237	9677091	24
37	2523519	13769343	13440348	328995	9676357	23
38	2526324	13758195	13428441	329754	9675623	22
39	2529138	13747061	13416547	330514	9674888	21
40	2531952	13735940	1340466	331275	9674152	20
41	2534766	13724833	13392796	332037	9673415	19
42	2537680	13713739	13380939	332800	9672677	18
43	2540393	13702658	13369094	333564	9671938	17
44	2543206	13691591	13357262	334328	9671199	16
45	2546019	13680535	13345442	335093	9670459	15
46	2548832	13669493	13333634	335859	9669718	14
47	2551645	13658464	13321838	336626	9668976	13
48	2554458	13647448	13310054	337394	9668233	12
49	2557270	13636445	13298282	338163	9667490	11
50	2560082	13625454	13286521	338933	9666746	10
51	2562894	13614476	13274772	339704	9666001	9
52	2565706	13603511	13263035	340476	9665255	8
53	2568517	13592559	13251310	341249	9664508	7
54	2571328	13581620	13239597	342023	9663761	6
55	2574139	13570694	13227896	342798	9663013	5
56	2576950	13559761	13216208	343573	9662264	4
57	2579760	13548880	13204531	344349	9661514	3
58	2582570	13537992	13192866	345126	9660763	2
59	2585380	13527117	13181213	345904	9660011	1
60	2588190	13516255	13169572	346683	9659258	0
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13						
min	Sinus	Logarithmi	Differentia	Logarithmi	Sinus	
0	2588190	13516255	13165572	346683	9659268	60
1	2591000	13505406	13157943	347463	9658505	59
2	2593809	13494570	13146126	348244	9657751	58
3	2596618	13483746	13134720	349026	9656996	57
4	2599427	13472934	13123126	349808	9656240	56
5	2602236	13462135	13111544	350591	9655484	55
6	2605045	13451348	13099973	351375	9654727	54
7	2607853	13440573	13088413	352160	9653969	53
8	2610661	13429810	13076864	352946	9653210	52
9	2613469	13419060	13065327	353733	9652450	51
10	2616277	13408322	13053801	354521	9651689	50
11	2619084	13397596	13042286	355310	9650927	49
12	2621891	13386883	13030783	356100	9650165	48
13	2624698	13376182	13019291	356891	9649402	47
14	2627505	13365493	13007810	357683	9648638	46
15	2630312	13354817	12996341	358476	9647873	45
16	2633118	13344153	12984884	359270	9647108	44
17	2635924	13333502	12973438	360064	9646342	43
18	2638730	13322863	12962004	360859	9645575	42
19	2641536	13312237	12950582	361655	9644807	41
20	2644342	13301623	12939171	362452	9644038	40
21	2647147	13291022	12927772	363250	9643268	39
22	2649952	13280432	12916383	364049	9642498	38
23	2652757	13269854	12905005	364849	9641727	37
24	2655562	13259288	12893638	365650	9640955	36
25	2658366	13248734	12882282	366452	9640182	35
26	2661170	13238191	12870936	367255	9639408	34
27	2663974	13227660	12859601	368059	9638633	33
28	2666777	13217141	12848278	368863	9637858	32
29	2669580	13206633	12836965	369668	9637082	31
30	2672383	13196137	12825663	370474	9636303	30





Sinus	Logarithmi	Differentia	Logarithmi	Sinus
2672583	13196137	12825062	370474	9636305
2675186	13185653	12814572	371281	9639527
2677989	13175181	12803092	372089	9642748
2680792	13164711	12791623	372893	9645969
2683595	13154273	12780165	373708	9649189
2686397	13143817	12769318	374516	9652408
2689199	13133413	12758082	375331	9655626
2691001	13123000	12746856	376144	9658841
2694802	13112599	12735641	376958	9662059
2697603	13102210	12724438	377772	9665275
2700404	13091833	12713246	378587	9668490
2703205	13081468	12702065	379403	9671704
2706005	13071114	12690894	380220	9674917
2708805	13060771	12679733	381038	9678129
2711605	13050440	12668583	381857	9681341
2714405	13040120	12657443	382677	9684552
2717204	13029812	12646314	383498	9687762
2720005	13019515	12635195	384320	9690971
2722802	13009229	12624086	385143	9694179
2725601	12998955	12612988	385967	9697387
2728400	12988692	12601901	386791	9700594
2731198	12978441	12590825	387616	9703800
2733996	12968291	12579759	388442	9707005
2736794	12957972	12568793	389269	9710209
2739592	12947755	12557658	390097	9713413
2742389	12937549	12546623	390926	9716616
2745186	12927354	12535598	391756	9719818
2747983	12917171	12524584	392587	9723019
2750789	12906999	12513580	393419	9726219
2753577	12896838	12502586	394252	9729418
2756373	12886689	12491603	395086	9732617

mi.	Sinus	Logarithmi	Differentia	Logarithmi	Sinus	
0	2756373	12886689	12491603	395086	9612617	60
1	2759169	12876551	12480630	395921	9611815	59
2	2761965	12866423	12469667	396756	9611012	58
3	2764761	12856306	12458714	397592	9610208	57
4	2767556	12846200	12447771	398429	9609403	56
5	2770351	12836105	12436838	399267	9608598	55
6	2773146	12826021	12425915	400106	9607792	54
7	2775941	12815948	12415002	400946	9606985	53
8	2778735	12805886	12404099	401787	9606177	52
9	2781529	12795835	12393206	402629	9605368	51
10	2784323	12785795	12382323	403472	9604559	50
11	2787117	12775766	12371450	404316	9603749	49
12	2789911	12765748	12360587	405161	9602938	48
13	2792704	12755741	12349734	406007	9602126	47
14	2795497	12745745	12338891	406854	9601313	46
15	2798290	12735760	12328059	407701	9600500	45
16	2801082	12725785	12317236	408549	9599685	44
17	2803874	12715821	12306423	409398	9598870	43
18	2806666	12705868	12295620	410248	9598054	42
19	2809458	12695926	12284827	411099	9597237	41
20	2812250	12685995	12274044	411951	9596419	40
21	2815041	12676075	12263271	412804	9595600	39
22	2817832	12666166	12252508	413658	9594781	38
23	2820623	12656267	12241754	414513	9593961	37
24	2823414	12646379	12231010	415369	9593140	36
25	2826204	12636501	12220275	416226	9592318	35
26	2828994	12626633	12209550	417083	9591495	34
27	2831784	12616776	12197835	417941	9590672	33
28	2834574	12606929	12188129	418800	9589848	32
29	2837364	12597093	12177432	419660	9589023	31
30	2040153	12587267	12166746	420521	9588197	30

	Sinuso	Logarithmi	Differencia	Logarithmi	Sinuso
0	2840153	12587267	12166746	420521	9588197
1	2842942	12577452	12156069	421383	9587371
2	2845731	12567647	12145401	422246	9586544
3	2848520	12557833	12134743	423110	9585716
4	2851308	12548069	12124094	423978	9584887
5	2854096	12538296	12113455	424841	9584057
6	2856884	12528533	12102825	425708	9583226
7	2859672	12518780	12092204	426576	9582395
8	2862459	12509038	12081593	427445	9581563
9	2865246	12499306	12070992	428314	9580730
10	2868033	12489585	12060401	429184	9579896
11	2870819	12479874	12049819	430055	9579061
12	2873605	12470174	12039247	430921	9578225
13	2876391	12460484	12028684	431800	9577389
14	2879177	12450804	12018130	432674	9576552
15	2881963	12441134	12007585	433549	9575714
16	2884748	12431474	11997049	434425	9574875
17	2887533	12421824	11986522	435302	9574036
18	2890318	12412184	11976004	436180	9573196
19	2893103	12402554	11965495	437059	9572355
20	2895888	12392934	11954996	437938	9571513
21	2898672	12383324	11944506	438818	9570670
22	2901456	12373724	11934025	439699	9569826
23	2904240	12364134	11923553	440581	9568982
24	2907023	12354554	11913090	441464	9568137
25	2909806	12344984	11902636	442348	9567291
26	2912589	12335425	11892192	443233	9566444
27	2915371	12325876	11881757	444119	9565596
28	2918153	12316337	11871330	445007	9564747
29	2920935	12306808	11860912	445896	9563898
30	2923717	12297289	11850503	446786	9563048

mi.	Sinus	Logarithmi	Differentia	Logarithmi	Sinus
0	2923717	12297289	11850503	446786	9563048
1	2926499	12287780	11840104	447676	9562197
2	2929280	12278280	11829713	448567	9561345
3	2932061	12268790	11819331	449459	9560492
4	2934842	12259310	11808958	450352	9559639
5	2937623	12249840	11798594	451246	9558785
6	2940403	12240379	11788239	452140	9557930
7	2943183	12230928	11777893	453035	9557074
8	2945953	12221487	11767556	453931	9556217
9	2948743	12212056	11757228	454828	9555360
10	2951523	12202634	11746908	455726	9554502
11	2954302	12193222	11736597	456625	9553643
12	2957081	12183820	11726295	457525	9552783
13	2959860	12174427	11716001	458426	9551922
14	2962630	12165044	11705716	459328	9551061
15	2965416	12155671	11695440	460231	9550209
16	2968194	12146308	11685173	461135	9549356
17	2970972	12136954	11674914	462040	9548502
18	2973750	12127610	11664695	462945	9547647
19	2976527	12118276	11654425	463851	9546792
20	2979304	12108952	11644194	464758	9545936
21	2982081	12099637	11633971	465666	9545079
22	2984857	12090332	11623757	466575	9544221
23	2987633	12081036	11613551	467485	9543362
24	2990409	12071749	11603353	468396	9542503
25	2993185	12062472	11593164	469308	9541643
26	2995960	12053204	11582983	470221	9540782
27	2998735	12043945	11572810	471135	9539920
28	3001510	12034696	11562646	472050	9539057
29	3004284	12025456	11552490	472966	9538194
30	3007058	12016225	11542341	473884	9537329

mi.	Sinus	Logarithmi	Differentia	Logarithmi	Sinus
30	3008058	112016225	11542341	473884	9537169
31	3009832	112007004	11532202	474802	9536294
32	3012606	111997792	1152071	475721	9535418
33	3015380	111988589	11511948	476641	9534541
34	3018153	111979396	11501835	477561	9533664
35	3020926	111970212	11491730	478482	9532786
36	3023699	111961037	11481633	479404	9531907
37	3026472	111951872	11471545	480327	9531027
38	3029244	111942716	11461465	481251	9530146
39	3032016	111933569	11451393	482176	9529264
40	3034788	111924431	11441329	483102	9528382
41	3037559	111915303	11431274	484029	9527499
42	3040339	111906184	11421227	484957	9526615
43	3043101	111897074	11411188	485886	9525730
44	3045872	111887973	11401157	486816	9524844
45	3048643	111878881	11391134	487747	9523958
46	3051413	111869798	11381119	488679	9523071
47	3054183	111860724	11371113	489611	9522183
48	3056953	111851659	11361115	490544	9521294
49	3059723	111842603	11351125	491478	9520404
50	3062492	111833557	11341144	492413	9519514
51	3065261	111824520	11331171	493349	9518623
52	3068030	111815492	11321206	494286	9517731
53	3070798	111806473	11311249	495224	9516838
54	3073566	111797463	11301300	496163	9515944
55	3076334	111788461	11292358	497103	9515050
56	3079102	111779468	11281424	498044	9514155
57	3081869	111770484	11271498	488986	9513259
58	3084636	111761509	11261580	499929	9512362
59	3087403	111752543	11251670	590873	9511464
60	3090170	111743586	11241768	501818	9510565

mi.	Sinus	Logarithmi	Differentia	Logarithmi	Sinus
0	3090170	11743586	11241768	501818	9510565
1	3092936	11734638	11231874	502764	9509666
2	3095702	11725699	11221988	503711	9508766
3	3098468	11716768	11212109	504659	9507865
4	3101234	11707846	11202239	505607	9506963
5	3103999	11698933	11192377	506556	9506061
6	3106764	11690029	11182523	507506	9505158
7	3109529	11681133	11172676	508457	9504254
8	3112294	11672246	11162837	509409	9503349
9	3115058	11663368	11153006	510362	9502443
10	3117822	11654499	11143184	511316	9501536
11	3120586	11645638	11133367	512271	9500629
12	3123342	11636786	11123559	513227	9499721
13	3126112	11627943	11113759	514184	9498812
14	3128875	11619199	11103967	515142	9497902
15	3131639	11610283	11094182	516101	9496991
16	3134400	11601466	11084405	517061	9496080
17	3137162	11592658	11074637	518021	9495168
18	3139924	11583858	11064876	518982	9494255
19	3142686	11575067	11055123	519944	9493341
20	3145448	11566285	11045378	520907	9492427
21	3148209	11557511	11035640	521871	9491512
22	3150970	11548746	11025910	522836	9490596
23	3153731	11539989	11016178	523802	9489679
24	3156491	11531240	11006471	524769	9488761
25	3159251	11522500	10996763	525737	9487842
26	3162011	11513768	10987062	526706	9486923
27	3164770	11505045	10977369	527676	9486003
28	3167529	11496330	10967683	528647	9485082
29	3170288	11487614	10958004	529620	9484160
30	3173047	11478926	10948332	530594	9483237



Sinus	Logarithmi	Differentia	Logarithmi	Sinus
3 173 047	11478926	10948332	530594	9483237 30
3 175 805	11470237	10938669	531568	9482314 29
3 178 563	11461556	10929013	532543	9481390 28
3 181 321	11452883	10919364	533519	9480465 27
3 184 079	11444219	10909723	534496	9479539 26
3 186 837	11435563	10900090	535473	9478612 25
3 189 594	11426915	10890464	536451	9477685 24
3 192 351	11418275	10880845	537430	9476757 23
3 195 108	11409644	10871234	538410	9475828 22
3 197 864	11401021	10861630	539391	9474898 21
3 200 620	11392406	10852033	540373	9473967 20
3 203 374	11383800	10842444	541356	9473035 19
3 206 130	11375202	10832862	542340	9472103 18
3 208 885	11366612	10823287	543325	9471170 17
3 211 640	11358030	10813819	544311	9470236 16
3 214 395	11349456	10804158	545298	9469301 15
3 217 150	11340891	10795605	546286	9468366 14
3 219 904	11332334	10785059	547275	9467430 13
3 222 658	11323785	10775520	548265	9466493 12
3 225 412	11315244	10765988	549256	9465555 11
3 228 165	11306711	10756462	550249	9464616 10
3 230 918	11298186	10746944	551242	9463677 9
3 233 671	11289670	10737434	552236	9462737 8
3 236 423	11281162	10727931	553231	9461796 7
3 239 175	11272662	10718436	554226	9460854 6
3 241 927	11264170	10708948	555222	9459911 5
3 244 679	11255686	10699467	556219	9458968 4
3 247 430	11247210	10689993	557217	9458024 3
3 250 181	11238742	10680526	558216	9457079 2
3 252 932	11230282	10671066	559216	9456133 1
3 255 682	11221830	10661623	560217	9455186 0



ma.	Sinus	Logarithmi	Differentia	Logarithmi	Sinus
0	3255682	11221830	10661613	560217	9455186 60
1	3258432	11213336	10652167	561219	9454239 59
2	3261182	11204950	10642728	562222	9453291 58
3	3263931	11196522	10633296	563226	9452342 57
4	3266681	11188102	10623871	564231	9451392 56
5	3269439	11179690	10614453	565237	9450441 55
6	3272179	11171286	10605042	566244	9449490 54
7	3274927	11162889	10595637	567251	9448538 53
8	3277675	11154500	10586239	568259	9447581 52
9	3280423	11146119	10576849	569270	9446631 51
10	3283171	11137746	10567466	570280	9445676 50
11	3285918	11129381	10558090	571291	9444720 49
12	3288665	11121024	10548721	572303	9443764 48
13	3291412	11112675	10539359	573316	9442807 47
14	3294159	11104334	10530004	574330	9441849 46
15	3296906	11096000	10520655	575345	9440890 45
16	3299652	11087674	10511313	576361	9439931 44
17	3302398	11079356	10501977	577370	9438971 43
18	3305144	11071046	10492648	578398	9438010 42
19	3307889	11062744	10483326	579418	9437048 41
20	3310634	11054449	10474010	580439	9436085 40
21	3313379	11046162	10464702	581460	9435122 39
22	3316123	11037883	10455401	582482	9434158 38
23	3318867	11029612	10446107	583505	9433193 37
24	3321611	11021348	10436819	584529	9432227 36
25	3324355	11013092	10427538	585554	9431260 35
26	3327098	11004843	10418263	586580	9430293 34
27	3329841	10996602	10408995	587607	9429325 33
28	3332585	10988368	10399733	588635	9428356 32
29	3335327	10980142	10390479	589663	9427386 31
30	3338069	10971923	10381231	590692	9426415 30

Sines	Logarithmi	Difference	Logarithmi	Sines
3338069	10971923	10381231	590692	9426415 30
3340811	10963712	10371990	591712	9425444 29
3343553	10955509	10362756	592713	9424472 28
3346294	10947313	10353528	593735	9423499 27
3349035	10939125	10344307	594818	9422525 26
3351776	10930944	10335092	595852	9421550 25
3354516	10922771	10325884	596887	9420575 24
3357256	10914606	10316682	597924	9419599 23
3359996	10906448	10307486	598962	9418622 22
3362736	10898298	10298297	600001	9417644 21
3365475	10890156	10289115	601041	9416665 20
3368214	10882021	10279940	602081	9415685 19
3370953	10873894	10270772	603122	9414705 18
3373691	10865774	10261610	604164	9413724 17
3376429	10857661	10252454	605207	9412742 16
3379167	10849555	10243304	606251	9411760 15
3381905	10841457	10234161	60729	9410777 14
3384642	10833366	10225024	608342	9409793 13
3387379	10825282	10215893	609389	9408808 12
3390116	10817206	10206770	610436	9407822 11
3392852	10809137	10197653	611484	9406836 10
3395588	10801075	10188542	612533	9405849 9
3398324	10793021	10179438	613583	9404861 8
3401060	10784974	10170340	614634	9403872 7
3403795	10776934	10161248	615686	9402882 6
3406530	10768902	10152162	616740	9401891 5
3409265	10760877	10143082	617795	9400900 4
3411999	10752850	10134009	618851	9399908 3
3414733	10744850	10124942	619903	9398915 2
3417467	10736847	10115881	620966	9397921 1
3420201	10728852	10106827	622025	9396926 0

mi.	Sinus	Logarithmi	Differentia	Logarithmi	Sinus
0	3420201	10728852	10106827	622025	9396926
1	3422934	10720865	10097781	623084	9395931
2	3425667	10712885	10088741	624144	9394935
3	3428400	10704912	10079707	625105	9393938
4	3431133	10696945	10070678	626167	9392940
5	3433865	10688984	10061654	627330	9391941
6	3436597	10681030	10052636	628394	9390942
7	3439329	10673085	10043616	629459	9389942
8	3442060	10665147	10034822	630525	9388941
9	3444791	10657216	10025624	631592	9387939
10	3447522	10649292	10016632	632660	9386937
11	3450253	10641375	10007646	633729	9385934
12	3452983	10633465	9998666	634799	9384930
13	3455713	10625562	9989692	635870	9383925
14	3458442	10617667	9980725	636942	9382919
15	3461171	10609779	9971764	638015	9381913
16	3463900	10601898	9962810	639088	9380906
17	3466629	10594024	9953862	640162	9379898
18	3469357	10586157	9944920	641237	9378889
19	3472085	10578297	9935984	642313	9377880
20	3474813	10570444	9927054	643390	9376870
21	3477540	10562598	9918130	644468	9375859
22	3480267	10554760	9909213	645547	9374847
23	3482994	10546929	9900302	646627	9373834
24	3485721	10539103	9891396	647708	9372820
25	3488447	10531286	9882496	648790	9371806
26	3491173	10523474	9873601	649873	9370791
27	3493899	10515669	9864711	650958	9369775
28	3496624	10507871	9855827	652044	9368758
29	3499349	10500080	9846949	653131	9367740
30	3502075	10492295	9838076	654219	9366722

mi.	Sinu	Logarithmi	Differentia	Logarithmi	Sinu	
30	3502075	10492295	5838076	654219	9366722	30
31	3504799	10484516	9829209	655307	9365703	29
32	3507523	10476745	9820349	656396	9364683	28
33	3510247	10468981	9811495	657486	9363662	27
34	3512971	10461225	9802648	658577	9362640	26
35	3515694	10453476	9793807	659669	9361618	25
36	3518417	10445734	9784972	660762	9360595	24
37	3521140	10437999	9776143	661856	9359571	23
38	3523862	10430271	9767320	662951	9358546	22
39	3526584	10422550	9758503	664047	9357521	21
40	3529306	10414836	9749693	665143	9356495	20
41	3532027	10407129	9740889	666240	9355468	19
42	3534748	10399429	9732091	667338	9354440	18
43	3537469	10391735	9723298	668437	9353411	17
44	3540190	10384047	9714510	669537	9352382	16
45	3542910	10376366	9705728	670638	9351352	15
46	3545630	10368692	9696951	671741	9350321	14
47	3548350	10361024	9688179	672845	9349289	13
48	3551070	10353362	9679412	673950	9348257	12
49	3553789	10345706	9670650	675056	9347224	11
50	3556508	10338057	9661894	676163	9346190	10
51	3559227	10330415	9653144	677271	9345155	9
52	3561945	10322780	9644400	678380	9344119	8
53	3564663	10315152	9635662	679490	9343082	7
54	3567380	10307531	9626930	680601	9342045	6
55	3570097	10299916	9618204	681712	9341007	5
56	3572814	10292308	9609484	682824	9339968	4
57	3575531	10284707	9600770	683937	9338928	3
58	3578247	10277113	9592062	685051	9337887	2
59	3580963	10269526	9583360	686166	9336846	1
60	3583679	10261946	9574664	687282	9335804	0

mi.	Sinus	Logarithmi	Differentia	Logarithmi	Sinus
0	3583679	10261946	9574664	687282	9335804 60
1	3586395	10254372	6565973	688399	9334761 59
2	3589110	10246804	9557287	689517	9333717 58
3	3591825	10239243	9548607	690636	9332673 57
4	3594540	10231688	9539932	691756	9331628 56
5	3597254	10224140	9531263	692877	9330582 55
6	3599968	10216598	9522599	693999	9329535 54
7	3602682	10209063	9513941	695122	9328488 53
8	3605395	10201534	9505288	696246	9327440 52
9	3608108	10194012	9496642	697370	9326391 51
10	3610821	10186496	9488001	698495	9325341 50
11	3613533	10178987	9479366	699621	9324290 49
12	3616245	10171484	9470736	700748	9323238 48
13	3618957	10163988	9462111	701877	9322186 47
14	3621669	10156498	9453491	703007	9321133 46
15	3624380	10149015	9444877	704138	9320079 45
16	3627091	10141538	9436268	705270	9319024 44
17	3629802	10134067	9427664	706403	9317969 43
18	3632512	10126603	9419066	707537	9316913 42
19	3635222	10119145	9410473	708672	9315856 41
20	3637932	10111694	9401886	709808	9314798 40
21	3640642	10104249	9393305	710944	9313739 39
22	3643351	10096811	9384730	712081	9312680 38
23	3646060	10089379	9376160	713219	9311620 37
24	3648768	10081953	9367595	714358	9310559 36
25	3651478	10074533	9359035	715498	9309497 35
26	3654184	10067120	9350481	716639	9308434 34
27	3656892	10059713	9341931	717782	9307371 33
28	3659599	10052312	9333386	718926	9306307 32
29	3662306	10044918	9324847	720071	9305242 31
30	3665012	10037530	9316313	721217	9304176 30



mi.	Sinus	Logarithmi	Differentia	Logarithmi	Sinus
30	3665012	10037530	9316313	721217	9304176
31	3667718	10030148	9307784	722364	9303109
32	3670424	10022773	9299261	723512	9302042
33	3673130	10015404	9290744	724660	9300974
34	3675835	10008041	9282232	725809	9299905
35	3678541	10000685	9273726	726959	9298836
36	3681246	9993335	9265215	728110	9297766
37	3683951	9985991	9256729	729262	9296695
38	3686655	9978653	9248238	730415	9295623
39	3689359	9971322	9239753	731569	9294550
40	3692062	9963997	9231273	732724	9293476
41	3694765	9956678	9222798	733880	9292401
42	3697468	9949366	9214326	735037	9291326
43	3700170	9942060	9205865	736195	9290250
44	3702872	9934760	9197406	737354	9289173
45	3705574	9927466	9188952	738514	9288096
46	3708276	9920178	9180503	739675	9287018
47	3710977	9912896	9172059	740837	9285939
48	3713678	9905620	9163620	742000	9284859
49	3716379	9898350	9155186	743164	9283778
50	3719080	9891086	9146757	744329	9282697
51	3721780	9883828	9138333	745495	9281615
52	3724480	9876577	9129915	746662	9280532
53	3727179	9869332	9121502	747830	9279448
54	3729878	9862093	9113094	748999	9278363
55	3732577	9854860	9104691	750169	9277278
56	3735275	9847633	9096293	751340	9276192
57	3737973	9840412	9087900	752512	9275105
58	3740671	9833192	9079512	753685	9274017
59	3743369	9825988	9071129	754859	9272928
60	3746066	9818785	9062752	756033	9271829

ms.	Sinus	Logarithmi	Differentia	Logarithmi	Sinus
0	3746046	9818785	9062752	756033	9271839 60
1	3748763	9811589	9054381	757208	9270749 59
2	3751460	9804399	9046015	758384	9269658 58
3	3754156	9797215	9037654	759561	9268566 57
4	3756852	9790036	9029296	760740	9267474 56
5	3759548	9782861	9020943	761920	9266381 55
6	3762243	9775696	9012595	763101	9265287 54
7	3764938	9768535	9004252	764283	9264192 53
8	3767633	9761380	8995914	765466	9263096 52
9	3770327	9754231	8987581	766650	9262000 51
10	3773021	9747088	8979253	767835	9260903 50
11	3775715	9739950	8970929	769021	9259805 49
12	3778408	9732818	8962610	770208	9258706 48
13	3781101	9725693	8954297	771396	9257606 47
14	3783794	9718574	8945989	772585	9256506 46
15	3786486	9711461	8937686	773775	9255405 45
16	3789178	9704354	8929388	774966	9254303 44
17	3791870	9697353	8921196	776157	9253200 43
18	3794562	9690158	8912809	777349	9252097 42
19	3797253	9683069	8904527	778542	9250993 41
20	3799944	9675986	8896259	779736	9249888 40
21	3802635	9668908	8887977	780931	9248782 39
22	3805325	9661836	8879709	782127	9247676 38
23	3808015	9654770	8871446	783324	9246569 37
24	3810704	9647709	8863187	784521	9245461 36
25	3813393	9640654	8854933	785721	9244352 35
26	3816082	9633605	8846683	786922	9243242 34
27	3818771	9626562	8838438	788124	9242131 33
28	3821459	9619525	8830198	789327	9241020 32
29	3824147	9612494	8821963	790531	9239908 31
30	3826834	9605468	8813732	791736	9238795 30



ms.	Sinus	Logarithmi	Differentia	Logarithmi	Sinus
30	3826834	9605468	8313732	791736	9238795
31	3829521	9598448	8805506	792942	9237681
32	3832208	9591434	8797285	794149	9236568
33	3834895	9584426	8789069	795357	9235453
34	3837581	9577424	8780859	796565	9234337
35	3840267	9570427	8772653	797774	9233220
36	3842953	9563436	8764452	798984	9232103
37	3845638	9556451	8756256	800195	9230985
38	3848323	9549472	8748065	801407	9229866
39	3851008	9542498	8739878	802620	9228746
40	3853692	9535530	8731695	803834	9227625
41	3856376	9528567	8723518	805049	9226504
42	3859060	9521610	8715345	806265	9225382
43	3861743	9514659	8707177	807482	9224259
44	3864426	9507713	8699013	808700	9223135
45	3867109	9500773	8690854	809919	9222010
46	3869791	9493839	8682700	811139	9220884
47	3872473	9486911	8674551	812360	9219757
48	3875155	9479988	8666405	813583	9218629
49	3877837	9473071	8658264	814807	9217501
50	3880518	9466160	8650128	816032	9216376
51	3883199	9459254	8641996	817258	9215247
52	3885880	9452354	8633870	818484	9214117
53	3888560	9445460	8625749	819711	9212985
54	3891240	9438571	8617632	820939	9211851
55	3893919	9431688	8609520	822168	9210715
56	3896598	9424810	8601412	823398	9209579
57	3899277	9417938	8593309	824628	9208441
58	3901955	9411071	8585210	825859	9207299
59	3904633	9404210	8577116	827094	9206155
60	3907311	9397354	8569026	828326	9205009

mi.	Sinus	Logarithmi	Differentia	Logarithmi	Sinus
0	3907311	9397354	8569026	828328	9205049 60
1	3909989	9390504	8560941	829563	9203912 59
2	3912666	9383660	8552861	830799	9202774 58
3	3915343	9376811	8544785	832036	9201635 57
4	3918020	9369938	8536714	833274	9200496 56
5	3920696	9363160	8528647	834513	9199356 55
6	3923372	9356337	8520584	835753	9198215 54
7	3926048	9349520	8512525	836995	9197073 53
8	3928723	9342708	8504470	838238	9195931 52
9	3931398	9335902	8496420	839482	9194788 51
10	3934072	9329101	8488374	840727	9193644 50
11	3936746	9322306	8480333	841973	9192499 49
12	3939420	9315516	8472296	843220	9191353 48
13	3942093	9308731	8464261	844468	9190207 47
14	3944766	9301952	8456236	845716	9189060 46
15	3947439	9295178	8448213	846965	9187912 45
16	3950112	9288410	8440195	848215	9186763 44
17	3952784	9281647	8432181	849466	9185614 43
18	3955456	9274890	8424172	850718	9184464 42
19	3958128	9268138	8416167	851971	9183313 41
20	3960799	9261392	8408167	853225	9182161 40
21	3963470	9254651	8400171	854480	9181009 39
22	3966140	9247915	8392179	855736	9179856 38
23	3968810	9241185	8384192	856994	9178702 37
24	3971480	9234460	8376209	858251	9177547 36
25	3974149	9227741	8368231	859510	9176391 35
26	3976818	9221027	8360257	860770	9175235 34
27	3979487	9214319	8352288	862031	9174078 33
28	3982155	9207616	8344322	863294	9172920 32
29	3984823	9200918	8336360	864558	9171761 31
30	3987491	9194226	8328403	865823	9170601 30

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no.	Sinus	Logarithmi	Differentia	Logarithmi	Sinus
30	3987491	9194126	8328403	865823	9170601
31	3990159	9187539	8320450	867089	9169440
32	39928.6	9180357	8312501	868356	9168179
33	3995493	9174181	8304558	869623	91671.7
34	3998159	9167510	8296616	870891	9165955
35	4000825	9160844	8288684	872160	9164792
36	4003491	9154183	8280753	873430	9163628
37	4006156	9147528	8272827	874701	9162463
38	4008821	9140878	8264905	875973	9161297
39	4011486	9134233	8256987	877246	9160131
40	4014150	9127593	8249073	878520	9158964
41	4016814	9120959	8241164	879795	9157796
42	4019478	9114330	8233259	881071	9156627
43	4022141	9107706	8225358	882348	9155457
44	4024804	9101087	8217461	883626	9154286
45	4026467	9094473	8209568	884905	9153115
46	4030130	9087865	8201679	886186	9151943
47	4032792	9081262	8193794	887468	9150770
48	4035454	9074664	8185913	888751	9149597
49	4038115	9068071	8178036	890035	9148423
50	4040776	9061483	8170163	891320	9147248
51	4043437	9054901	8162295	892606	9146072
52	4046097	9048324	8154431	893893	9144895
53	4048757	9041752	8146571	895181	9143718
54	4051416	9035185	8138715	896470	9142540
55	4054075	9028623	8130863	897760	9141361
56	4056734	9022066	8123015	899051	9140181
57	4059392	9015514	8115172	900342	9139001
58	4062050	9008968	8107334	901634	9137820
59	4064708	9002427	8099500	902927	9136638
60	4067366	8995891	8091670	904221	9135455

mi.	Sinus	Logarithmi	Differentia	Logarithmi	Sinus
30	4146932	8802159	7858627	943532	9099613
31	4149579	8795779	7850921	944858	9098406
32	4152226	8789404	7843219	946185	9097190
33	4154872	8783033	7835520	947513	9095990
34	4157518	8776667	7827825	948842	9094781
35	4160163	8770306	7820134	950172	9093572
36	4162808	8763959	7812456	951503	9092362
37	4165453	8757599	7804764	952835	9091151
38	4168097	8751253	7797085	954168	9089939
39	4170741	8744912	7789409	955503	9088726
40	4173385	8738575	7781736	956839	9087512
41	4176028	8732243	7774067	958176	9086297
42	4178671	8725916	7766402	959514	9085082
43	4181313	8719594	7758741	960853	9083866
44	4183955	8713277	7751084	962193	9082649
45	4186597	8706965	7743431	963534	9081432
46	4189239	8700657	7735782	964875	9080214
47	4191880	8694354	7728137	966217	9078995
48	4194521	8688056	7720496	967560	9077775
49	4197162	8681763	7712859	968904	9076555
50	4199802	8675475	7705226	970249	9075334
51	4202442	8669192	7697597	971595	9074112
52	4205081	8662913	7689970	972943	9072889
53	4207720	8656639	7682347	974292	9071665
54	4210359	8650370	7674728	975642	9070441
55	4212997	8644106	7667113	976993	9069216
56	4215635	8637846	7659501	978345	9067990
57	4218273	8631591	7651893	979698	9066763
58	4220910	8625341	7644289	981052	9065535
59	4223547	8619096	7636689	982407	9064307
60	4226183	8612856	7629093	983763	9063078

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25 min	Sinus	Logarithmi	Differentia	Logarithmi	Sinus
0	4126183	8612856	7629093	983763	9061078
1	4228819	8606620	7621500	985120	9061848
2	4231455	8600389	7613911	986478	9060618
3	4234090	8594163	7606326	987837	9059377
4	4236725	8587942	7598745	989197	9058155
5	4239360	8581725	7591167	990558	9056922
6	4241994	8575513	7583593	991920	9055688
7	4244628	8569306	7576023	993283	9054454
8	4247262	8563103	7568456	994647	9053219
9	4249895	855695	7560893	996012	9051983
10	4252528	8550712	7553333	997379	9050746
11	4255161	8544523	7545776	998747	9049508
12	4257793	8538339	7538225	1000116	9048270
13	4260425	8532160	7530674	1001486	9047031
14	4263056	8525985	7523129	1002856	9045791
15	4265687	8519815	7515588	1004227	9044551
16	4268318	8513650	7508051	1005599	9043310
17	4270949	8507489	7500517	1006972	9042068
18	4273579	8501333	7492987	1008346	9040825
19	4276209	8495181	7485460	1009721	9039582
20	4278838	8489034	7477937	1011097	9038338
21	4281467	8482892	7470418	1012474	9037093
22	4284096	8476754	7462902	1013852	9035847
23	4286724	8470621	7455389	1015232	9034600
24	4289352	8464493	7447880	1016613	9033353
25	4291979	8458369	7440374	1017995	9032105
26	4294606	8452250	7432872	1019378	9030856
27	4297233	8446135	7425373	1020762	9029606
28	4299859	8440025	7417878	1022147	9028356
29	4302485	8433919	7420386	1023533	9027105
30	4305111	8427818	7401898	1024920	9025853

mi.	Senus	Logarithmi	Differentia	Logarithmi	Senus
30	4305111	8427818	7402898	1024920	9025853
31	4307736	8421721	7395414	1026308	9024600
32	4310361	8415630	7387933	1027697	9023347
33	4312986	8409543	7380456	1029087	9022093
34	4315610	8403460	7372982	1030478	9020838
35	4318234	8397382	7365512	1031870	9019582
36	4320858	8391308	7358045	1033263	9018326
37	4323481	8385239	7350582	1034657	9017069
38	4326104	8379174	7343122	1036052	9015811
39	4328726	8373114	7335665	1037449	9014552
40	4331348	8367059	7328212	1038847	9013292
41	4333970	8361008	7320762	1040246	9012031
42	4336591	8354962	7313316	1041646	9010770
43	4339212	8348920	7305873	1043047	9009508
44	4341833	8342883	7298434	1044449	9008245
45	4344453	8336850	7290998	1045852	9006982
46	4347073	8330822	7283566	1047256	9005718
47	4349693	8324798	7276138	1048662	9004453
48	4352312	8318778	7268713	1050069	9003187
49	4354931	8312763	7261292	1051471	9001921
50	4357549	8306752	7253874	1052878	9000654
51	4360167	8300746	7246459	1054287	8999386
52	4362785	8294744	7239047	1055697	8998117
53	4365402	8288747	7231639	1057108	8996848
54	4368019	8282754	7224234	1058520	8995578
55	4370635	8276765	7216832	1059933	8994307
56	4373251	8270781	7209434	1061347	8993035
57	4375867	8264801	7202039	1062762	8991762
58	4378482	8258826	7194648	1064178	8990489
59	4381097	8252855	7187260	1065595	8989215
60	4383712	8246889	7179875	1067014	8987940

25 min	Sinus	Logarithmi	Differentia	Logarithmi	Sinus
0	4126183	8612856	7629093	983763	9061078
1	4128819	8606620	7621500	985120	9061848
2	4131455	8600389	7613911	986478	9060618
3	4134090	8594163	7606326	987837	9059387
4	4136725	8587942	7598745	989197	9058155
5	4139360	8581725	7591167	990558	9056922
6	4141994	8575513	7583593	991920	9055688
7	4144628	8569306	7576023	993283	9054454
8	4147262	8563103	7568456	994647	9053219
9	4149895	855695	7560893	996012	9051983
10	4152528	8550712	7553333	997379	9050746
11	4155161	8544523	7545776	998747	9049508
12	4157795	8538339	7538223	1000116	9048270
13	4160428	8532160	7530674	1001486	9047031
14	4163056	8525985	7523129	1002856	9045791
15	4165687	8519815	7515588	1004227	9044551
16	4168318	8513650	7508051	1005599	9043310
17	4170949	8507489	7500517	1006972	9042068
18	4173579	8501333	7492987	1008346	9040825
19	4176209	8495181	7485460	1009721	9039582
20	4178838	8489034	7477937	1011097	9038338
21	4181467	8482892	7470418	1012474	9037093
22	4184096	8476754	7462902	1013852	9035847
23	4186724	8470621	7455389	1015232	9034600
24	4189352	8464493	7447880	1016613	9033353
25	4191979	8458369	7440374	1017995	9032105
26	4194606	8452250	7432872	1019378	9030856
27	4197233	8446135	7425373	1020762	9029606
28	4199859	8440025	7417878	1022147	9028356
29	4202485	8433919	7410386	1023533	9027105
30	4205111	8427818	7402893	1024920	9025853



mi.	Sinus	Logarithmi	Differentia	Logarithmi	Sinus
30	4305111	8427818	7402898	1024920	9025853
31	4307736	8421722	7395414	1026308	9024600
32	4310361	8415630	7387933	1027697	9023347
33	4312986	8409543	7380456	1029087	9022093
34	4315610	8403460	7372982	1030478	9020838
35	4318234	8397382	7365512	1031870	9019582
36	4320858	8391308	7358045	1033263	9018326
37	4323481	8385239	7350582	1034657	9017069
38	4326104	8379174	7343122	1036052	9015811
39	4328726	8373114	7335665	1037449	9014552
40	4331348	8370599	7328212	1038847	9013292
41	4333970	8366008	7320762	1040246	9012031
42	4336591	8359962	7313316	1041646	9010770
43	4339212	8353920	7305873	1043047	9009508
44	4341833	8347883	7298434	1044449	9008245
45	4344453	8341850	7290998	1045852	9006982
46	4347073	8335822	7283566	1047256	9005718
47	4349693	8329798	7276138	1048660	9004453
48	4352312	8323778	7268713	1050066	9003187
49	4354931	8317763	7261292	1051471	9001921
50	4357549	8311752	7253874	1052878	9000654
51	4360167	8305746	7246459	1054287	8999386
52	4362785	8299744	7239047	1055697	8998117
53	4365402	8293747	7231639	1057108	8996848
54	4368019	8287754	7224234	1058520	8995578
55	4370635	8281765	7216832	1059933	8994307
56	4373251	8275781	7209434	1061347	8993034
57	4375867	8269801	7202039	1062762	8991762
58	4378482	8263826	7194648	1064178	8990489
59	4381097	8257855	7187260	1065595	8989215
60	4383712	8251889	7179875	1067014	8987940

mi.	Sinus	Logarithmi	Differentia	Logarithmi	Sinus
0	4383712	8246889	7179875	1067014	8987940
1	4386326	8240927	7172493	1068434	8986664
2	4388940	8234970	7165115	1069855	8985388
3	4391554	8229017	7157740	1071277	8984111
4	4394167	8223068	7150368	1072700	8982833
5	4396780	8217124	7143001	1074123	8981555
6	4399392	8211184	7135637	1075547	8980276
7	4402004	8205249	7128277	1076972	8978996
8	4404616	8199318	7120920	1078398	8977715
9	4407227	8193391	7113566	1079825	8976433
10	4409838	8187469	7106216	1081253	8975151
11	4412449	8181551	7098868	1082683	8973868
12	4415059	8175638	7091524	1084114	8972584
13	4417669	8169729	7084183	1085546	8971299
14	4420278	8163824	7076845	1086979	8970013
15	4422887	8157923	7069510	1088413	8968727
16	4425496	8152027	7062179	1089848	8967440
17	4428104	8146135	7054851	1091284	8966152
18	4430712	8140247	7047526	1092721	8964864
19	4433320	8134364	7040205	1094159	8963576
20	4435927	8128485	7032887	1095598	8962285
21	4438534	8122610	7025572	1097038	8960994
22	4441140	8116739	7018260	1098479	8959702
23	4443746	8110873	7010952	1099921	8958410
24	4446352	8105011	7003647	1101364	8957117
25	4448957	8099153	6996345	1102808	8955824
26	4451562	8093299	6989045	1104254	8954530
27	4454167	8087450	6981749	1105691	8953235
28	4456771	8081605	6974456	1107142	8951939
29	4459375	8075764	6967166	1108598	8950642
30	4461978	8069927	6959879	1110048	8949344

mi.	Sinus	Logarithmi	Differentia	Logarithmi	Sinus
30	4461978	8069927	6959379	1110048	8949344
31	4464581	8064095	6952596	1111499	8948045
32	4467184	8058267	6945316	1112951	8946746
33	4469786	8052443	6938039	1114404	8945446
34	4472388	8046623	6930765	1115858	8944146
35	4474990	8040808	6923495	1117313	8942845
36	4477591	8034997	6916228	1118769	8941543
37	4480192	8029190	6908964	1120226	8940240
38	4482792	8023387	6901703	1121684	8938936
39	4485392	8017589	6894446	1123143	8937632
40	4487992	8011795	6887191	1124604	8936327
41	4490591	8006005	6879939	1126066	8935021
42	4493190	8000219	6872690	1127529	8933717
43	4495788	7994437	6865444	1128993	8932406
44	4498386	7988660	6858202	1130458	8931098
45	4500984	7982887	6850963	1131924	8929789
46	4503582	7977118	6843727	1133391	8928479
47	4506179	7971353	6836494	1134859	8927169
48	4508776	7965592	6829265	1136327	8925858
49	4511372	7959835	6822039	1137796	8924546
50	4514968	7954083	6814817	1139266	8923234
51	4516563	7948335	6807597	1140738	8921921
52	4519158	7942591	6800380	1142211	8920607
53	4521753	7936851	6793166	1143685	8919292
54	4524347	7931115	6785955	1145160	8917976
55	4526941	7925383	6778747	1146636	8916659
56	4529535	7919655	6771542	1148113	8915341
57	4532128	7913932	6764340	1149592	8914023
58	4534721	7908213	6757141	1151072	8912704
59	4537313	7902498	6749945	1152553	8911385
60	4539905	7896787	6742752	1154035	8910065
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mi.	Sinus	Logarithmi	Differentia	Logarithmi	Sinus
0	4539905	7896787	6742752	1154035	8910065
1	4542497	7891080	6735562	1155518	8908744
2	4545088	7885377	6728375	1157001	8907422
3	4547679	7879678	6721191	1158487	8906099
4	4540270	7873983	6714010	1159973	8904776
5	4552860	7868192	6706832	1161460	8903452
6	4555450	7862605	6699657	1162948	8902127
7	4558039	7856923	6692486	1164437	8900802
8	4560628	7851245	6685318	1165927	8899476
9	4563216	7845571	6678153	1167418	8898149
10	4565804	7839901	6670991	1168910	8896821
11	4568392	7834235	6663832	1170403	8895492
12	4570979	7828573	6656676	1171897	8894163
13	4573566	7822915	6649523	1173392	8892833
14	4576153	7817261	6642373	1174888	8891502
15	4578739	7811611	6635225	1176386	8890171
16	4581325	7805965	6628080	1177885	8888839
17	4584911	7800323	6620938	1179385	8887506
18	4586496	7794685	6613799	1180886	8886172
19	4589081	7789051	6606663	1182388	8884838
20	4591665	7783422	6599531	1183891	8883503
21	4594249	7777797	6592402	1185395	8882167
22	4596833	7772176	6585276	1186900	8880830
23	4599416	7766558	6578152	1188406	8879492
24	4601999	7760944	6571031	1189913	8878154
25	4604581	7755334	6563913	1191421	8876815
26	4607163	7749728	6556797	1192931	8875485
27	4609744	7744126	6549684	1194442	8874134
28	4612325	7738528	6542574	1195954	8872793
29	4614906	7732934	6535467	1197467	8871451
30	4617486	7727344	6528363	1198981	8870108

mi.	Sinus	Logarithmi	Differentia	Logarithmi	Sinus	
30	4617486	7727344	6528363	1198981	8870108	30
31	4620066	7721757	6521261	1200496	8868765	29
32	4622646	7716174	6514162	1202012	8867421	28
33	4625225	7710596	6507067	1203529	8866076	27
34	4627804	7705022	6499975	1205047	8864730	26
35	4630382	7699452	6492886	1206566	8863383	25
36	4632960	7693886	6485800	1208086	8862035	24
37	4635538	7688324	6478717	1209607	8860687	23
38	4638115	7682766	6471637	1211129	8859338	22
39	4640692	7677212	6464560	1212652	8857989	20
40	4643268	7671662	6457485	1214177	8856639	21
41	4645844	7666116	6450413	1215703	8855288	19
42	4648420	7660574	6443344	1217230	8853936	18
43	4650995	7655035	6436277	1218758	8852583	17
44	4653570	7649500	6429213	1220287	8851230	16
45	4656145	7643969	6422152	1221817	8849876	15
46	4658719	7638442	6415094	1223348	8848521	14
47	4661293	7632919	6408039	1224880	8847165	13
48	4663866	7627400	6400987	1226413	8845809	12
49	4666439	7621885	6393938	1227947	8844452	11
50	4669012	7616374	6386893	1229481	8843095	10
51	4671584	7610867	6379850	1231017	8841737	9
52	4674156	7605363	6372809	1232554	8840378	8
53	4676727	7599863	6365771	1234092	8839018	7
54	4679298	7594367	6358735	1235632	8837657	6
55	4681869	7588875	6351702	1237173	8836295	5
56	4684439	7583387	6344672	1238715	8834932	4
57	4687009	7577903	6337645	1240258	8833569	3
58	4689578	7572422	6330620	1241802	8832205	2
59	4692147	7566945	6323598	1243347	8830841	1
60	4694716	7561472	6316578	1243894	8829476	0

mi.	Sinus	Logarithmi	Differentia	Logarithmi	Sinus
0	4694716	7561472	6316578	1244894	8829476 60
1	4697284	7556003	6309561	1244442	8828110 59
2	4699852	7550538	6302547	124799	8826743 58
3	4702419	7545076	6295535	1249541	8825375 57
4	4804986	7539618	6288526	1251092	8824007 56
5	4707553	7534164	6281520	1252644	8822638 55
6	4710119	7528714	6274517	1254197	8821268 54
7	4712685	7523268	6267517	1255751	8819898 53
8	4715250	7517826	6260521	1257305	8818527 52
9	4717815	7512388	6253528	1258860	8817155 51
10	4720380	7506954	6246528	1260416	8815783 50
11	4722944	7501524	6239550	1261974	8814408 49
12	4725508	7496097	6232564	1263533	8813034 48
13	4728071	7490674	6225581	1265093	8811659 47
14	4730634	7485255	6218601	1266654	8810285 46
15	4733197	7479840	6211624	1268216	8808907 45
16	4735759	7474428	6204649	1269779	8807530 44
17	4738321	7469020	6197676	1271344	8806152 43
18	4740882	7463616	6190706	1272910	8804773 42
19	4743443	7458216	6183739	1274477	8803394 41
20	4746004	7452819	6176774	1276045	8802014 40
21	4748564	7447426	6169812	1277614	8800633 39
22	4751124	7442037	6162853	1279182	8799251 38
23	4753683	7436651	6155896	1280755	8797869 37
24	4756242	7431269	6148942	1282327	8796486 36
25	4758801	7425891	6141991	1283900	8795102 35
26	4761359	7420517	6135063	1285474	8793717 34
27	4763917	7415146	6128096	1287050	8792332 33
28	4766474	7409779	6121152	1288627	8790946 32
29	4769031	7404416	6114211	1290205	8789559 31
30	4771588	7399057	6107273	1291784	8788171 30

mi.	Sinus	Logarithmi	Differentia	Logarithmi	Sinus
30	4771588	7399057	6107273	1291784	8788171
31	4774144	7393701	6100337	1293364	8786782
32	4776700	7388349	6093404	1294945	8785393
33	4779255	7383001	6086474	1296527	8784003
34	4781810	7377657	6079547	1298110	8782613
35	4784365	7372316	6072622	1299694	8781222
36	4786919	7366979	6065700	1301279	8779830
37	4789473	7361646	6058781	1302865	8778437
38	4792026	7356316	6051863	1304453	8777044
39	4794579	7350990	6044948	1306042	8775650
40	4797132	7345668	6038036	1307632	8774255
41	4799684	7340349	6031126	1309223	8772859
42	4802236	7335034	6024219	1310815	8771462
43	4804787	7329723	6017315	1312408	8770065
44	4807338	7324415	6010413	1314002	8768667
45	4809888	7319111	6003514	1315597	8767267
46	4812438	7313811	5996618	1317193	8765868
47	4814988	7308514	5989723	1318791	8764468
48	4817537	7303221	5982831	1320390	8763068
49	4820086	7297931	5975941	1321990	8761665
50	4822633	7292645	5969053	1323591	8760263
51	4825183	7287363	5962170	1325193	8758860
52	4827731	7282084	5955288	1326796	8757456
53	4830278	7276809	5948409	1328400	8756051
54	4832825	7271538	5941533	1330005	8754646
55	4835371	7266270	5934659	1331611	8753240
56	4837917	7261006	5927787	1333219	8751833
57	4840462	7255746	5920918	1334828	8750425
58	4843007	7250489	5914051	1336438	8749016
59	4845552	7245236	5907187	1338049	8747607
60	4848096	7239987	5900326	1339661	8746197



m.	Sinus	Logarithmi	Differentia	Logarithmi	Sinus
0	4848096	7239987	5900326	1339661	8746197
1	4850640	7234712	5893468	1341274	8744787
2	4853184	7229500	5886612	1342888	8743376
3	4855727	7224262	5879759	1344503	8741964
4	4858270	7219027	5872906	1346119	8740551
5	4860812	7213795	5866059	1347736	8739137
6	4863354	7208567	5859213	1349354	8737722
7	4865895	7203342	5852368	1350974	8736307
8	4868436	7198121	5845526	1352595	8734891
9	4870977	7192903	5838686	1354217	8733475
10	4873517	7187689	5831849	1355840	8732058
11	4876057	7182478	5825014	1357464	8730640
12	4878596	7177271	5818182	1359089	8729221
13	4881135	7172068	5811353	1360715	8727801
14	4883674	8166868	5804526	1362342	8726381
15	4886212	7161672	5797701	1363971	8724960
16	4888750	7156480	5790879	1365601	8723538
17	4891287	7151291	5784059	1367232	8722116
18	4893824	7146106	5777242	1368864	8720693
19	4896361	7140924	5770427	1370497	8719269
20	4898897	7135746	5763615	1372131	8717844
21	4901433	7130572	5756806	1373766	8716418
22	4903968	7125401	5749999	1375402	8714992
23	4906503	7120234	5743195	1377039	8713565
24	4909037	7115070	5736392	1378678	8712138
25	4911571	7109909	5729591	1380318	8710710
26	4914105	7104752	5722793	1381959	8709281
27	4916638	7099598	5715997	1383601	8707851
28	4919171	7094448	5709204	1385244	8706420
29	4921703	7089301	5702413	1386888	8704989
30	4924235	7084158	5695625	1388533	8703557

29	mm.	Sinus	Logarithmi	Differentia	Logarithmi	Sinus	
30	4924235	7084158	5695625	1388533	8703557	30	
31	4926767	7079018	5688839	1390179	8702114	29	
32	4929298	7073882	5682056	1391826	8700691	28	
33	4931829	7068749	5675275	1393474	8699257	27	
34	4934359	7063620	5668496	1395123	8697822	26	
35	4936889	7058494	5661719	1396775	8696386	25	
36	4939418	7053372	5654945	1398427	8694949	24	
37	4941947	7048253	5648173	1400080	8693512	23	
38	4944476	7043138	5641404	1401734	8692074	22	
39	4947004	7038026	5634637	1403389	8690636	21	
40	4949532	7032918	5627873	1405045	8689197	20	
41	4952059	7027814	5621111	1406703	8687757	19	
42	4954586	7022713	5614351	1408362	8686316	18	
43	4957113	7017615	5607593	1410022	8684873	17	
44	4959639	7012521	5600838	1411683	8683431	16	
45	4962165	7007430	5594085	1413345	8681988	15	
46	4964690	7002342	5587334	1415008	8680544	14	
47	4967215	6997258	5580586	1416672	8679100	13	
48	4969740	6992177	5573840	1418337	8677655	12	
49	4972264	6987099	5567095	1420004	8676209	11	
50	4974788	6982025	5560353	1421672	8674762	10	
51	4977311	6976954	5553613	1423341	8673314	9	
52	4979834	6971886	5546875	1425011	8671866	8	
53	4982356	6966822	5540140	1426682	8670417	7	
54	4984878	6961761	5533407	1428354	8668968	6	
55	4987399	6956704	5526677	1430027	8667518	5	
56	4989920	6951650	5519949	1431701	8666067	4	
57	4992441	6946600	5513224	1433376	8664615	3	
58	4994961	6941553	5506500	1435053	8663162	2	
59	4997481	6936509	5499778	1436731	8661708	1	
60	5000000	6931469	5493059	1438410	8660254	0	

mi.	Sinus	Logarithmi	Differentia	Logarithmi	Sinus
0	5000000	6931469	5493059	1438410	8660154
1	5002519	6926432	5486342	1440090	8658799
2	5005038	6921399	5479628	1441771	8657344
3	5007556	6916369	5472916	1443453	8655888
4	5010074	6911342	5466206	1445136	8654431
5	5012591	6906319	5459498	1446811	8652974
6	5015108	6901299	5452792	1448507	8651514
7	5017624	6896222	5446088	1450194	8650055
8	5020140	6891269	5439387	1451882	8648595
9	5022656	6886259	5432688	1453571	8647134
10	5025171	6881253	5425992	1455261	8645673
11	5027686	6876250	5419298	1456952	8644211
12	5030200	6871250	5412605	1458645	8642748
13	5032714	6866254	5405915	1460339	8641284
14	5035227	6861261	5399227	1462034	8639820
15	5037740	6856271	5392541	1463730	8638355
16	5040253	6851285	5385858	1465427	8636889
17	5042765	6846302	5379177	1467125	8635423
18	5045277	6841322	5372499	1468824	8633956
19	5047788	6836347	5365822	1470525	8632488
20	5050299	6831374	5359147	1472227	8631019
21	5052809	6826405	5352475	1473930	8629549
22	5055319	6821439	5345805	1475634	8628079
23	5057829	6816476	5339137	1477339	8626608
24	5060338	6811516	5332471	1479041	8625137
25	5062847	6806560	5325808	1480752	8623665
26	5065355	6801607	5319147	1482465	8622192
27	5067863	6796657	5312488	1484179	8620718
28	5070370	6791710	5305831	1485895	8619243
29	5072877	6786767	5299177	1487610	8617768
30	5075384	6781827	5292525	1489322	8616292

30					
mi.	Sinus	Logarithmi	Differentia	Logarithmi	Sinus
30	5075384	6781827	5292525	1489302	8616252
31	5077890	6776890	5285874	1491016	8614815
32	5080396	6771956	5279225	1492731	8613338
33	5082901	6767026	5272579	1494447	8611860
34	5085406	6762099	5265934	1496165	8610381
35	5087911	6757175	5259291	1497884	8608901
36	5090415	6752255	5252651	1499604	8607420
37	5092919	6747338	5246013	1501325	8605939
38	5095422	6742424	5239377	1503047	8604457
39	5097925	6737513	5232743	1504770	8602975
40	5100427	6732606	5226112	1506494	8601492
41	5102929	6727702	5219482	1508220	8600008
42	5105430	6722802	5212855	1509947	8598523
43	5107932	6717905	5206230	1511675	8597037
44	5110431	6813011	5199607	1513404	8595551
45	5112931	6708120	5192986	1515134	8594064
46	5115431	6703232	5186367	1516865	8592577
47	5117930	6698348	5179751	1518597	8591089
48	5120429	6693467	5173137	1520330	8589600
49	5122927	6688589	5166525	1522064	8588110
50	5125425	6683714	5159914	1523800	8586619
51	5127922	6678842	5153305	1525537	8585127
52	5130419	6673974	5146699	1527275	8583635
53	5132916	6669109	5140095	1529014	8582142
54	5135412	6664247	5133493	1530754	8580649
55	5137908	6659388	5126892	1532496	8579155
56	5140403	6654532	5120293	1534239	8577660
57	5142898	649680	5113697	1535983	8576164
58	5145393	644831	5107103	1537728	8574668
59	5147887	639985	5100511	1539474	8573171
60	5150381	6635142	5093921	1541221	8571673

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mi.	Sinus	Logarithmi	Differentia	Logarithmi	Sinus	
30	5224986	6491327	4897151	1594176	8526402	30
31	5227466	6486583	4890624	1591959	8524882	29
32	5229946	6481842	4884098	1597744	8523361	28
33	5232425	6477103	4877573	1599530	8521839	27
34	5234904	6472367	4871050	1601317	8520317	26
35	5237382	6467634	4867529	1603105	8518794	25
36	5239800	6462904	4863010	1604894	8517270	24
37	5242317	6458177	4851493	1606084	8515745	23
38	5244814	6453453	4841978	1608475	8514220	22
39	5247290	6448731	4838465	1610267	8512094	21
40	5249766	6444014	4831954	1612060	8511167	20
41	5252241	6439299	4825444	1613855	8509639	19
42	5254716	6434588	4818937	1615651	8508111	18
43	5257191	6429880	4812432	1617448	8506582	17
44	5259666	6425175	4805929	1619246	8505052	16
45	5262139	6420473	4799427	1621046	8503522	15
46	5264612	6415774	4792927	1622847	8501991	14
47	5267085	6411078	4786429	1624649	8500459	13
48	5269557	6406385	4779933	1626452	8498927	12
49	5272029	6401695	4773439	1628256	8497394	11
50	5274501	6397008	4766947	1630061	8495860	10
51	5276972	6392324	4760456	1631868	8494326	9
52	5279443	6387643	4753967	1633676	8492791	8
53	5281913	6382965	4747480	1635485	8491255	7
54	5284383	6378290	4740995	1637295	8489718	6
55	5286852	6373618	4734512	1639106	8488180	5
56	5289321	6368949	4728031	1640918	8486641	4
57	5291789	6364283	4721552	1642731	8485102	3
58	5294257	6359620	4715074	1644546	8483562	2
59	5296725	6354951	4708599	1646362	8482022	1
60	5299192	6350305	4702126	1648179	8480481	0

mi.	Sinus	Logarithmi	Differentia	Logarithmi	Sinus
0	5299192	6350305	4702126	1648179	8480481 00
1	5301659	6345652	4695651	1649997	8478939 59
2	5304125	6341002	4689186	1651816	8477297 58
3	5306591	6336354	4682717	1653637	8475854 57
4	5309056	6331709	4676240	1655459	8474310 56
5	5311521	6327067	4669785	1657282	8472765 55
6	5313985	6322428	4663322	1659106	8471219 54
7	5316449	6317792	4656861	1660931	8469673 53
8	5318913	6313159	4650402	1662757	8468126 52
9	5321376	6308529	4643944	1664585	8466579 51
10	5323839	6303902	4637488	1666414	8465031 50
11	5326301	6299278	4631034	1668244	8463482 49
12	5328763	6294657	4624582	1670075	8461932 48
13	5331224	6290039	4618131	1671908	8460381 47
14	5333685	6285424	4611682	1673742	8458830 46
15	5336145	6280812	4605235	1675577	8457279 45
16	5338605	6276203	4598790	1677413	8455725 44
17	5341063	6271597	4592347	1679250	8454172 43
18	5343524	6266994	4585906	1681088	8452618 42
19	5345983	6262394	4579467	1682927	8451064 41
20	5348441	6257797	4573030	1684767	8449509 40
21	5350898	6253203	4566594	1686609	8447953 39
22	5353355	6248612	4560160	1688452	8446396 38
23	5355812	6244024	4553718	1690296	8444838 37
24	5358268	6239439	4547298	1692141	8443280 36
25	5360724	6234857	4540859	1693988	8441721 35
26	5363179	6230278	4534442	1695836	8440161 34
27	5365634	6225702	4528017	1697685	8438600 33
28	5368088	6221129	4521594	1699535	8437039 32
29	5370542	6216559	4515172	1701387	8435477 31
30	5372996	6211992	4508752	1703240	8433915 30



ms.	Sinus	Logarithm	Differentia	Logarithm	Sinus
30	5372996	6211992	4508752	1703240	8433915
31	5375449	6207427	4502333	1705094	8432352
32	5377902	6202865	4495916	1706949	8430788
33	5380354	6198306	4489501	1708805	8429223
34	5382806	6193750	4483088	1710662	8427658
35	5385258	6189197	4476676	1712521	8426092
36	5387709	6184647	4470266	1714381	8424525
37	5390159	6180100	4463858	1716242	8422957
38	5392609	6175556	4457452	1718104	8421389
39	5395058	6171015	4451048	1719967	8419820
40	5397507	6166477	4444646	1721831	8418250
41	5399955	6161942	4438245	1723697	8416679
42	5402403	6157409	4431845	1725564	8415108
43	5404851	6152879	4425447	1727432	8413536
44	5407298	6148352	4419051	1729301	8411963
45	5409745	6143828	4412656	1731172	8410390
46	5412191	6139307	4406263	1733044	8408816
47	5414637	6134789	4399872	1734917	8407241
48	5417082	6130274	4393483	1736791	8405666
49	5419527	6125762	4387096	1738666	8404090
50	5421972	6121253	4380711	1740542	8402513
51	5424416	6116747	4374327	1742420	8400935
52	5426859	6112244	4367945	1744299	8399357
53	5429302	6107744	4361565	1746179	8397778
54	5431745	6103246	4355186	1748060	8396199
55	5434187	6098751	4348809	1749942	8394619
56	5436629	6094259	4342433	1751826	8393038
57	5439070	6089770	4336059	1753711	8391456
58	5441510	6085284	4329687	1755597	8389873
59	5443950	6080800	4323316	1757484	8388290
60	5446390	6076319	4316947	1759372	8386706

mi.	Sinus	Logarithmi	Differentia	Logarithm	Sinus
•	5446397	6076319	4316547	1759372	8386706
1	5448829	6071841	4310579	1761261	8385121
2	5451268	6067366	4304213	1763153	8383536
3	5453707	6062894	4297849	1765045	8381950
4	5456145	6058425	4291487	1766938	8380368
5	5458583	6053958	4285126	1768832	8378776
6	5461020	6049494	4278766	1770728	8377188
7	5463456	6045033	4272408	1772625	8375599
8	5465892	6040575	4266052	1774523	8374009
9	5468328	6036120	4259698	1776421	8372419
10	5470763	6031668	4253346	1778321	8370828
11	5473198	6027218	4246994	1780224	8369236
12	5475632	6022771	4240644	1782127	8367644
13	5478066	6018327	4234296	1784031	8366051
14	5480499	6013886	4227950	1785936	8364457
15	5482932	6009448	4221605	1787843	8362862
16	5485364	6005013	4215262	1789751	8361266
17	5487796	6000580	4208920	1791660	8359670
18	5490228	5996150	4202580	1793570	8358073
19	5492659	5991723	4196241	1795482	8356476
20	5495090	5987299	4189904	1797395	8354878
21	5497520	5982878	4183569	1799309	8353279
22	5499950	5978460	4177236	1801224	8351680
23	5502379	5974044	4170904	1803140	8350080
24	5504808	5969631	4164573	1805058	8348479
25	5507236	5965221	4158244	1806977	8346877
26	5509664	5960814	4151917	1808897	8345274
27	5512091	5956409	4145591	1810818	8343671
28	5514518	5952007	4139267	1812740	8342067
29	5516944	5947608	4132944	1814664	8340463
30	5519370	5943212	4126623	1816589	8338858



m	Sinus	Logarithm	Differentia	Logarithmi	Sinus
30	5519370	5943212	4116623	1816509	8338358
31	5521795	5938329	4120314	1818515	8337252
32	5524220	5934438	4113990	1820442	83364628
33	5526645	5930050	4107680	1822370	8334039
34	5529069	5925665	4101366	1824299	8332431
35	5531493	5921273	4095043	1826230	8330822
36	5533916	5916893	4088731	1828162	8329211
37	5536333	5912516	4082421	1830095	8327602
38	5538760	5908142	4076113	1832029	8325991
39	5541182	5903771	4069807	1833964	8324380
40	5543603	5899402	4063501	1835901	8322768
41	5546024	5895036	4057197	1837839	8321155
42	5548444	5890673	4050895	1839778	8319541
43	5550864	5886313	4044594	1841719	8317927
44	5553283	5881955	4038294	1843661	8316312
45	5555702	5877600	4031996	1845604	8314696
46	5558120	5873248	4025700	1847548	8313079
47	5560538	5868899	4019405	1849494	8311462
48	5562956	5864552	4013111	1851441	8309844
49	5565373	5860208	4006819	1853389	8308226
50	5567790	5855867	4000529	1855338	8306607
51	5570206	5851529	3994241	1857288	8304987
52	5572622	5847193	3987953	1859240	8303367
53	5575037	5842860	3981667	1861193	8301746
54	5577452	5838530	3975383	1863147	8300124
55	5579866	5834203	3969101	1865102	8298501
56	5582280	5829878	3962819	1867059	8296877
57	5584693	5825554	3956539	1869017	8295253
58	5587106	5821237	3950261	1870976	8293628
59	5589518	5816920	3943984	1872936	8292002
60	5591929	5812606	3937709	1874897	8290376

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mi.	Sinus	Logarithmi	Differentia	Logarithmi	Sinus
0	5191929	5812606	3937709	1874897	8290376
1	5594340	5808295	3931435	1876860	8288794
2	5596751	5803987	3925163	1878824	8287121
3	5599161	5799681	3918892	1880789	8285493
4	5601571	5795378	3912623	1882755	8283864
5	5603981	5791078	3906355	1884723	8282234
6	5606390	5786780	3900088	1886692	8280603
7	5608798	5782485	3893823	1888662	8278972
8	5611206	5778192	3887559	1890633	8277340
9	5613614	5773902	3881297	1892605	8275708
10	5616021	5769615	3875036	1894579	8274075
11	5618427	5765330	3868776	1896554	8272441
12	5620833	5761048	3862518	1898530	8270806
13	5623239	5756769	3856261	1900508	8269170
14	5625644	5752493	3850006	1902487	8267534
15	5628049	5748219	3843752	1904467	8265897
16	5630453	5743948	3837500	1906448	8264259
17	5632857	5739680	3831249	1908431	8262621
18	5635260	5735414	3824999	1910415	8260982
19	5637663	5731151	3818751	1912400	8259343
20	5640066	5726891	3812505	1914386	8257703
21	5642468	5722634	3806261	1916373	8256062
22	5644869	5718379	3800017	1918362	8254421
23	5647270	5714127	3793775	1920352	8252779
24	5649670	5709878	3787538	1922343	8251136
25	5652070	5705631	3781296	1924335	8249492
26	5654469	5701387	3775059	1926328	8247847
27	5656868	5697145	3768822	1928323	8246202
28	5659266	5692906	3762587	1930319	8244556
29	5661664	5688670	3756354	1932316	8242909
30	5664062	5684436	3750122	1934314	8241262

mi.	Sinus	Logarithmi	Differentia	Logarithmi	Sinus
30	5664062	5684436	3750122	1934314	8241262
31	5666459	5680205	3743891	1936314	8239614
32	5668856	5675976	3737661	1938315	8237965
33	5671252	5671750	3731433	1940317	8236316
34	5673648	5667527	3725206	1942321	8234666
35	5676043	5663306	3718980	1944326	8233015
36	5678438	5659088	3712756	1946331	8231363
37	5680832	5654872	3706532	1948340	8229711
38	5683226	5650659	3700310	1950349	8228058
39	5685619	5646449	3694090	1952359	8226405
40	5688012	5642241	3687871	1954370	8224751
41	5690404	5638036	3681653	1956383	8223096
42	5692796	5633834	3675437	1958398	8221440
43	5695187	5629635	3669223	1960412	8219784
44	5697578	5625438	3663010	1962428	8218127
45	5699968	5621244	3656799	1964445	8216469
46	5702358	5617052	3650588	1966464	8214810
47	5704747	5612863	3644379	1968484	8213151
48	5707136	5608670	3638171	1970505	8211491
49	5709524	5604492	3631965	1972527	8209831
50	5711912	5600311	3625761	1974550	8208170
51	5714289	5596132	3619557	1976575	8206508
52	5716686	5591956	3613355	1978601	8204846
53	5719072	5587782	3607154	1980628	8203183
54	5721458	5583611	3600954	1982657	8201519
55	5723844	5579443	3594756	1984687	8199854
56	5726229	5575277	3588559	1986718	8198188
57	5728613	5571114	3582364	1988750	8196522
58	5730997	5566952	3576169	1990784	8194855
59	5733381	5562795	3569976	1992819	8193188
60	5735764	5558639	3563784	1994855	8191520

ang.	Sinus	Logarithmi	Differen.	Logarithmi	Sinus
0	5735764	5558639	3563784	1924855	8161520 60
1	738147	554485	3557594	192682	818951 59
2	5742529	5535336	3551405	1928931	8188182 58
3	5742911	5540188	3545217	200097	8180512 57
4	574292	5542043	3539031	2003012	8184841 56
5	5747672	5537900	3531846	2005054	8188170 55
6	5750052	5533760	3526661	2007093	8181498 54
7	5752432	5529622	3520479	2009143	8179825 53
8	5754811	5525487	3514293	2011189	8178151 52
9	5757190	5521354	3508118	2017236	8176477 51
10	5759568	5517224	3501939	2015285	8174802 50
11	5761946	5513096	3495761	2017335	8173126 49
12	5764323	5508971	3489585	2019386	8171449 48
13	5766700	5504849	3483410	2021439	8169772 47
14	5769077	5500729	3477236	2023493	8168094 46
15	5771452	5496612	3471064	2025548	8166416 45
16	5773827	5492497	3464892	2027605	8164717 44
17	5776202	548838	3458722	2029663	8163057 43
18	5778576	5484275	3452553	2031722	8161376 42
19	5780950	548016	3446384	2033782	815969 41
20	5783324	5476063	3440219	2035844	8158015 40
21	5785697	547196	3434054	2037907	8156330 39
22	5788069	5467861	3427890	2039971	8154647 38
23	5790441	5463764	3421728	2042036	8152965 37
24	5792812	5459669	3415566	2044103	8151278 36
25	5795183	5455577	3409406	2046171	8149593 35
26	5797553	5451488	3403248	2048240	8147907 34
27	5799923	5447401	3397090	2050311	8146220 33
28	5802292	5443317	3390934	2052383	8144532 32
29	5804661	5439235	3384779	2054456	8142848 31
30	5807030	5435156	3378626	2056530	8141155 30

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mi.	Sinus	Logarithmi	Differentia	Logarithmi	Sinus
30	5807030	5435156	3378626	2056530	8141155
31	5809398	5431079	3372473	2058606	8139465
32	5811766	5427005	3366422	2060683	8137775
33	5814133	5422933	3360172	2062761	8136084
34	5816499	5418864	3354024	2064840	8134393
35	5818865	5414797	3347877	2066920	8132701
36	5821230	5410733	3341731	2069002	8131008
37	5823595	5406671	3335586	2071085	8129314
38	5825959	5402612	3329443	2073169	8127620
39	5828323	5398555	3323300	2075255	8125925
40	5830687	5394501	3317159	2077342	8124229
41	5833050	5390449	3311019	2079430	8122532
42	5835412	5386400	3304880	2081520	8120835
43	5837774	5382353	3298742	2083611	8119137
44	5840136	5378308	3292605	2085703	8117439
45	5842497	5374266	3286470	2087796	8115740
46	5844858	5370226	3280335	2089891	8114040
47	5847218	5366189	3274202	2091987	8112339
48	5849578	5362154	3268070	2094084	8110638
49	5851937	5358122	3261939	2096183	8108936
50	5854295	5354093	3255810	2098283	8107234
51	5856653	5350067	3249683	2100384	8105531
52	5859010	5346043	3243557	2102486	8103827
53	5861367	5342021	3237431	2104590	8102122
54	5863724	5338002	3231307	2106695	8100417
55	5866080	5333985	3225184	2108801	8098711
56	5868436	5329970	3219061	2110909	8097004
57	5870791	5325958	3212940	2113018	8095296
58	5873145	5321948	3206820	2115128	8093588
59	5875499	5317940	3200700	2117240	8091879
60	5877852	5313935	3194582	2119353	8090170

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pro.	Sin.	Logarithmi	Differentia	Logarithmi	Sin.
0	5877852	5313935	3194582	2119353	8090170
1	5880205	5309932	3188465	2121467	8089460
2	5882558	5305932	3182350	2123582	8086749
3	5884910	5301935	3176236	2125699	8085038
4	5887262	5297940	3170123	2127817	8083326
5	5889613	5293947	3164011	2129936	8081613
6	5891964	5289957	3157900	2132057	8079909
7	5894314	5285969	3151790	2134179	8078185
8	5896664	5281984	3145682	2136302	8076470
9	5899013	5278001	3139575	2138426	8074754
10	5901361	5274020	3133468	2140552	8073038
11	5903709	5270042	3127363	2142679	8071321
12	5906056	5266066	3121259	2144807	8069603
13	5908403	5262092	3115155	2146937	8067885
14	5910750	5258121	3109053	2149068	8066166
15	5913096	5254152	3102952	2151200	8064446
16	5915442	5250186	3096853	2153333	8062726
17	5917787	5246222	3090754	2155468	8061005
18	5920132	5242261	3084657	2157604	8059283
19	5922476	5238302	3078561	2159741	8057561
20	5924820	5234346	3072466	2161880	8055838
21	5927163	5230392	3066372	2164020	8054114
22	5929505	5226441	3060280	2166161	8052389
23	5931847	5222492	3054188	2168304	8050664
24	5934189	5218545	3048097	2170448	8048938
25	5936530	5214601	3042008	2172593	8047212
26	5938871	5210659	3035919	2174740	8045485
27	5941211	5206720	3029832	2176888	8043757
28	5943551	5202783	3023746	2179037	8042028
29	5945890	5198848	3017660	2181188	8040299
30	5948228	5194916	3011576	2183340	8038569

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mi.	Sinus	Logarithmi	Differentia	Logarithmi	Sinus
30	5948228	5194916	3011576	2183340	8038569
31	5950566	5190986	3005493	2185493	8036838
32	5952904	5187059	2999412	2187647	8035107
33	5955241	5183134	2993331	2189803	8033375
34	5957578	5179211	2987251	2191960	8031642
35	5959914	5175291	2981173	2194118	8029909
36	5962250	5171373	2975095	2196278	8028175
37	5964585	5167457	2969018	2198439	8026440
38	5966919	5163544	2962943	2200601	8024705
39	5969253	5159633	2956868	2202765	8022969
40	5971586	5155724	2950794	2204930	8021232
41	5973919	5151818	2944722	2207096	8019494
42	5976251	5147914	2938650	2209264	8017756
43	5978583	5144012	2932579	2211433	8016017
44	5980915	5140113	2926510	2213603	8014278
45	5983246	5136216	2920442	2215774	8012538
46	5985577	5132322	2914375	2217947	8010797
47	5987907	5128430	2908309	2220121	8009056
48	5990237	5124540	2902244	2222296	8007314
49	5992566	5120653	2896180	2224473	8005571
50	5994894	5116768	2890117	2226651	8003828
51	5997222	5112886	2884056	2228830	8002084
52	5999549	5109006	2877995	2231011	8000339
53	6001876	5105128	2871935	2233193	7998593
54	6004202	5101253	2865877	2235376	7996847
55	6006528	5097380	2859819	2237561	7995100
56	6008853	5093509	2853762	2239747	7993352
57	6011178	5089641	2847706	2241935	7991604
58	6013502	5085775	2841651	2244124	7989855
59	6015826	5081911	2835597	2246314	7988105
60	6018150	5078050	2829544	2248506	7986355

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	Sinus	Logarithmi	Differentia	Logarithmi	Sinus
0	6018150	5078050	2829544	2248506	7986355
1	6020473	5074191	2823492	2250699	7984604
2	6022796	5070334	2817441	2252893	7982852
3	6025118	5066479	2811391	2255088	7981100
4	6027439	5062627	2805342	2257285	7979347
5	6029760	5058777	2799294	2259483	7977593
6	6032080	5054929	2793247	2261682	7975838
7	6034400	5051084	2787201	2263883	7974084
8	6036719	5047241	2781156	2266085	7972328
9	6039038	5043401	2775113	2268288	7970572
10	6041357	5039563	2769071	2270492	7968815
11	6043675	5035727	2763029	2272698	7967057
12	6045992	5031894	2756989	2274905	7965299
13	6048309	5028063	2750949	2277114	7963540
14	6050625	5024234	2744910	2279324	7961780
15	6052940	5020408	2738873	2281535	7960020
16	6055255	5016584	2732836	2283748	7958259
17	6057570	5012762	2726800	2285962	7956497
18	6059884	5008942	2720764	2288178	7954735
19	6062198	5005125	2714730	2290395	7952972
20	6064511	5001310	2708696	2292614	7951208
21	6066824	4997497	2702663	2294834	7949443
22	6069136	4993687	2696632	2297055	7947678
23	6071448	4989879	2690602	2299277	7945912
24	6073759	4986073	2684573	2301500	7944146
25	6076069	4982270	2678545	2303725	7942379
26	6078379	4978469	2672518	2305951	7940611
27	6080688	4974670	2666492	2308178	7938842
28	6082997	4970873	2660467	2310406	7937073
29	6085306	4967079	2654444	2312635	7935303
30	6087614	4963287	2648421	2314866	7933533



mi.	Sinus	Logarithmi	Differentia	Logarithmi	Sinus
30	6087614	4963287	2648421	2314866	7933533
31	6089922	4959497	2642399	2317098	7931762
32	6092229	4955710	2636378	2319332	7929990
33	6094536	4951925	2630358	2321567	7928218
34	6096842	4948142	2624338	2323804	7926445
35	6099147	4944361	2618319	2326042	7924671
36	6101452	4940581	2612301	2328281	7922896
37	6103756	4936806	2606284	2330522	7921121
38	6106060	4933032	2600268	2332764	7919345
39	6108364	4929260	2594252	2335008	7917569
40	6110667	4925490	2588237	2337253	7915792
41	6112970	4921723	2582224	2339499	7914014
42	6115272	4917958	2576211	2341747	7912235
43	6117573	4914195	2570199	2343996	7910456
44	6119873	4910435	2564189	2346246	7908676
45	6122173	4906677	2558179	2348498	7906896
46	6124473	4902921	2552170	2350751	7905114
47	6126772	4899168	2546163	2353005	7903332
48	6129071	4895417	2540156	2355261	7901550
49	6131369	4891668	2534150	2357518	7899767
50	6133667	4887921	2528145	2359776	7897983
51	6135964	4884177	2522141	2362036	7896198
52	6138261	4880435	2516138	2364297	7894413
53	6140557	4876695	2510136	2366559	7892627
54	6142853	4872957	2504134	2368823	7890841
55	6145148	4869222	2498134	2371088	7889054
56	6147442	4865489	2492135	2373354	7887266
57	6149746	4861758	2486136	2375622	7885477
58	6152030	4858029	2480138	2377891	7883688
59	6154323	4854302	2474140	2380162	7881898
60	6156615	4850578	2468144	2382434	7880108

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mi.	Sinus	Logarithmi	Differentia	Logarithmi	Sinus
0	6156615	4850578	2468144	2382434	7880108 60
1	6158907	4846856	2462149	2384707	7878317 59
2	6161198	4843136	2456154	2386982	7876525 58
3	6163489	4839418	2450160	2389258	7874732 57
4	6165781	4835702	2444167	2391535	7872939 56
5	6168070	4831989	2438175	2393814	7871145 55
6	6170259	4828278	2432184	2396094	7869350 54
7	6172648	4824569	2426193	2398376	7867555 53
8	6174936	4820862	2420203	2400659	7865759 52
9	6177224	4817158	2414215	2402943	7863963 51
10	6179512	4813456	2408227	2405229	7862166 50
11	6181799	4809756	2402240	2407516	7860368 49
12	6184085	4806058	2396254	2409804	7858569 48
13	6186371	4802363	2390269	2412094	7856770 47
14	6188656	4798670	2384285	2414385	7854970 46
15	6190940	4794979	2378301	2416678	7853169 45
16	6193224	4791290	2372318	2418972	7851368 44
17	6195508	4787603	2366336	2421267	7849566 43
18	6197791	4783919	2360355	2423564	7847764 42
19	6200074	4780237	2354375	2425862	7845961 41
20	6202356	4776557	2348396	2428161	7844157 40
21	6204638	4772880	2342418	2430462	7842352 39
22	6206919	4769205	2336441	2432764	7840547 38
23	6209199	4765532	2330465	2435067	7838741 37
24	6211479	4761861	2324489	2437372	7836935 36
25	6213758	4758192	2318514	2439678	7835128 35
26	6216037	4754525	2312539	2441986	7833320 34
27	6218315	4750860	2306565	2444295	7831511 33
28	6220593	4747198	2300593	2446605	7829702 32
29	6222870	4743538	2294621	2448917	7827892 31
30	6225146	4739880	2288650	2451230	7826082 30

mi.	Sinus	Log arithmi	Differentia	Logarithmi	Sinus	
30	6225146	4739880	2288650	2451230	7826081	30
31	6227422	4736224	2282680	2453544	7824271	29
32	6229698	4732571	2276711	2455860	7822459	28
33	6231973	4728920	2270743	2458177	7820647	27
34	6234248	4725271	2264775	2460496	7818834	26
35	6236522	4721624	2258808	2462816	7817020	25
36	6238796	4717979	2252842	2465137	7815205	24
37	6241069	4714336	2246876	2467460	7813390	23
38	6243342	4710695	2240911	2466784	7811574	22
39	6245614	4707056	2234946	2472110	7809758	21
40	6247885	4703419	2228982	2474437	7807941	20
41	6250156	4699785	2223020	2476765	7806123	19
42	6252426	4696153	2217058	2479095	7804304	18
43	6254696	4692523	2211097	2481426	7802485	17
44	6256966	4688895	2205136	2483759	7800665	16
45	6259235	4685269	2199176	2486093	7798845	15
46	6261503	4681645	2193217	2488428	7797024	14
47	6263771	4678024	2187259	2490765	7795202	13
48	6266038	4674405	2181302	2493103	7793380	12
49	6268305	4670788	2175345	2495443	7791557	11
50	6270572	4667173	2169389	2497784	7789733	10
51	6272838	4663561	2163435	2500126	7787909	9
52	6275103	4659951	2157481	2502470	7786084	8
53	6277368	4656343	2151528	2504815	7784258	7
54	6279632	4652737	2145575	2507162	7782432	6
55	6281895	4649133	2139623	2509510	7780605	5
56	6284158	4645531	2133672	2511859	7778777	4
57	6286420	4641931	2127721	2514210	7776949	3
58	6288682	4638334	2121772	2516562	7775120	2
59	6290943	4634739	2115824	2518915	7773290	1
60	6293204	4631146	2109876	2521270	7771460	0

mi.	Sinus	Logarithmi	Differencia	Logarithmi	Sinus	
30	6883546	3734510	52338	3210672	7255744	10
31	6885656	3731446	518013	3213435	7251741	29
33	6887765	3728383	512187	3216198	7249737	28
33	6889874	3725322	506361	3218961	7247733	27
34	6891982	3722263	500536	3221727	7245740	26
35	6894089	3719206	494711	3224495	7243724	25
36	6896196	3716150	488886	3227264	7241718	24
37	6898302	3713096	483061	3230035	7239711	23
38	6900408	3710044	477236	3232808	7237704	22
39	6902513	3706994	471411	3235583	7235697	21
40	6904617	3703946	465587	3238359	7233689	20
41	6906721	3700899	459762	3241137	7231681	19
42	6908824	3697854	453938	3243916	7229672	18
43	6910927	3694811	448114	3246697	7227662	17
44	6913029	3691770	442291	3249479	7225651	16
45	6915131	3688730	436467	3252263	7223639	15
46	6917231	3685692	430644	3255048	7221627	14
47	6919332	3682656	424821	3257835	7219614	13
48	6921432	3679622	418999	3260623	7217601	12
49	6923531	3676590	413177	3263413	7215588	11
50	6925630	3673559	407355	3266204	7213574	10
51	6927728	3670530	401533	3268997	7211559	9
52	6929825	3667503	395711	3271792	7209543	8
53	6931922	3664478	389889	3274589	7207527	7
54	6934018	3661454	384067	3277387	7205511	6
55	6936114	3658432	378245	3280187	7203494	5
56	6938209	3655412	372423	3282989	7201476	4
57	6940303	3652394	366602	3285792	7199457	3
58	6942397	3649377	360780	3288597	7197438	2
59	6944491	3646362	354958	3291404	7195418	1
60	6946584	3643349	349136	3294213	7193398	0

mm.	Sinus	Logarithmi	Difference	Logarithmi	Sinus
0	6946584	3643349	349136	3294213	7193398
1	6948676	3640338	243315	3297023	7191377
2	6950767	3637329	337494	3299835	7189355
3	6952858	3634321	331673	3302648	7187333
4	6954949	3631315	325852	3305463	7185310
5	6957039	3628311	320032	3308279	7183287
6	6959128	3625308	314211	3311097	7181263
7	6961216	3622307	308390	3313917	7179238
8	6963304	3619308	302570	3316738	7177213
9	6965392	3616311	296750	3319561	7175187
10	6967479	3613315	290930	3322385	7173161
11	6969565	3610321	285110	3325211	7171134
12	6971651	3607329	279290	3328039	7169106
13	6973736	3604338	273469	3330869	7167078
14	6975821	3601349	267649	3333700	7165049
15	6977905	3598362	261829	3336533	7163019
16	6979988	3595377	256009	3339368	7160989
17	6982071	3592394	250190	3342204	7158958
18	6984153	3589412	244370	3345042	7156927
19	6986235	3586432	238550	3347882	7154895
20	6988316	3583454	232731	3350723	7152863
21	6990396	3580478	226912	3353566	7150830
22	6992476	3577504	221093	3356411	7148796
23	6994555	3574531	215274	3359257	7146762
24	6996634	3571560	209455	3362105	7144727
25	6998712	3568590	203635	3364955	7142691
26	7000789	3565622	197816	3367806	7140655
27	7002866	3562656	191997	3370659	7138618
28	7004942	3559691	186178	3373513	7136581
29	7007018	3556728	180359	3376369	7134543
30	7009093	3553767	174541	3379226	7132504

Gr.	Sinus	Logarithmi	Differentia	Logarithmi	Sinus
30	7009093	3553767	174541	3379226	7132504
31	7011167	3550808	168723	3382085	7130465
32	7013241	3547851	162905	3384946	7128225
33	7015314	3544895	157087	3387808	7126385
34	7017387	3541948	151269	3390672	7124344
35	7019459	3538989	145451	3393538	7122303
36	7021530	3536038	139633	3396406	7120261
37	7023602	3533089	133814	3399275	7118218
38	7025671	3530142	127996	3402146	7116175
39	7027741	3527197	122178	3405019	7114131
40	7029810	3524243	116359	3407894	7112086
41	7031879	3521291	110541	3410770	7110041
42	7033947	3518341	104723	3413648	7107995
43	7036014	3515392	98904	3416528	7105949
44	7038081	3512445	93886	3419409	7103902
45	7040147	3509500	87268	3422292	7101854
46	7042213	3506626	81450	3425176	7099806
47	7044278	3503694	75632	3428062	7097757
48	7046342	3500764	69824	3430940	7095708
49	7048406	3497835	64006	3433829	7093658
50	7050469	3494908	58178	3436730	7091607
51	7052532	3491983	52360	3439623	7089556
52	7054594	3489060	46548	3442517	7087504
53	7056655	3486139	40726	3445413	7085452
54	7058716	3483219	34908	3448311	7083399
55	7060776	3480301	29090	3451211	7081345
56	7062836	3477385	23273	3454112	7079291
57	7064895	3474470	17455	3457015	7077236
58	7066953	3471557	11637	3459920	7075181
59	7069011	3468645	5818	3462827	7073125
60	7071068	3465735	0	3465735	7071068

**S** Viuant le Priuilege & mandement de S. M. à tous Preuoists des terres de son obeissance, & à tous ses amez Iusticiers & Officiers, & à chascun d'eux appartiendra, ainsi qu'il est permis à Barthelemy Vincent Marchand Libraire à Lyon, d'Imprimer vendre & debiter ledict Liure intitulé *Logarithmorum Canonis descriptio, seu Arithmeticarum supputationum mirabilis abbreviatio. Eiusque vsus in vtraque Trigonometria vt etiam in omni Logistica Mathematica, amplissimi, facillimi & expeditissimi explicatio. Authore ac Inuētore Ioanne Nepero: Barone Merchistonij, &c.* durant le temps & espace de neuf ans, à commencer du iour & datte de ladiete Impression paracheuee: avec deffences à toutes personnes de quelque estat, vacation & condition qu'ils soyent d'en vendre ou debiter, ny d'en estre saisi d'un ou plusieurs exemplaires autres que de ceux imprimez par ledict Vincent, à peyne de confiscation des exemplaires, & autres peines portees par iceluy, qui fust donné à Paris les iour, mois & an y contenu. Signé & deuëment scellé du grand scel de cire iaune.

Acheué d'Imprimer le premier Oëtobre,  
mil six cents dixneuf.

mi.	Sinus	Logarithmi	Differentia	Logarithmi	Sinus	
30	6360782	4524336	1931766	2592570	7716246	30
31	6363026	4520808	1925839	2594969	7714395	29
32	6365470	4517282	1919913	2597369	7712544	28
33	6367513	4513758	1913988	2599770	7710692	27
34	6369756	4510236	1908063	2602173	7708839	26
35	6371999	4506717	1902140	2604577	7706986	25
36	6374241	4503200	1896217	2606983	7705132	24
37	6376482	4499685	1890295	2609390	7703277	23
38	6378722	4496172	1884373	2611799	7701422	22
39	6380962	4492661	1878452	2614209	7699566	21
40	6383201	4489152	1872531	2616621	7697710	20
41	6385440	4485645	1866611	2619034	7695853	19
42	6387678	4482140	1860692	2621448	7693995	18
43	6389916	4478637	1854773	2623864	7692137	17
44	6392153	4475136	1848855	2626281	7690278	16
45	6394390	4471637	1842937	2628700	7688418	15
46	6396626	4468140	1837020	2631120	7686549	14
47	6398862	4464646	1831105	2633541	7684687	13
48	6401097	4461154	1825190	2635964	7682835	12
49	6403332	4457664	1819276	2638388	7680973	11
50	6405566	4454176	1813363	2640813	7679110	10
51	6407799	4450690	1807450	2643240	7677246	9
52	6410032	4447206	1801537	2645669	7675382	8
53	6412264	4443724	1795625	2648099	7673517	7
54	6414496	4440244	1789714	2650530	7671652	6
55	6416728	4436766	1783803	2652963	7669786	5
56	6418959	4433290	1777893	2655397	7667919	4
57	6421189	4429816	1771983	2657833	7666051	3
58	6423419	4426344	1766074	2660270	7664183	2
59	6425648	4422875	1760166	2662709	7662314	1
60	6427876	4419408	1754259	2665149	7660445	mi. Gr.



ms.	Stem	Logarithmi	Differentia	Logarithmi	Stem
0	6427876	4419408	1754259	2665149	7660445
1	6430104	4415943	1748353	2667590	7658575
2	6432331	4412480	1742447	2670033	7656704
3	6434558	4409019	1736542	2672477	7654833
4	6436785	4405560	1730637	2674923	7652961
5	6439011	4402103	1724733	2677370	7651088
6	6441236	4398648	1718829	2679819	7649215
7	6443461	4395195	1712926	2682269	7647341
8	6445685	4391743	1707022	2684721	7645466
9	6447909	4388293	1701119	2687174	7643591
10	6450132	4384845	1695216	2689629	7641715
11	6452355	4381399	1689314	2692085	7639838
12	6454577	4377955	1683412	2694543	7637960
13	6456799	4374514	1677512	2697002	7636082
14	6459020	4371075	1671613	2699462	7634204
15	6461240	4367638	1665714	2701924	7632325
16	6463460	4364203	1659816	2704387	7630445
17	6465679	4360770	1653918	2706852	7628564
18	6467898	4357339	1648021	2709318	7626683
19	6470116	4353910	1642124	2711786	7624802
20	6472333	4350483	1636228	2714255	7622920
21	6474550	4347058	1630332	2716726	7621037
22	6476766	4343635	1624437	2719198	7619153
23	6478982	4340214	1618542	2721672	7617269
24	6481198	4336795	1612648	2724147	7615384
25	6483413	4333378	1606751	2726623	7613498
26	6485628	4329963	1600862	2729101	7611612
27	6487842	4326550	1594970	2731580	7609725
28	6490055	4323139	1589078	2734061	7607837
29	6492268	4319730	1583187	2736543	7605949
30	6494480	4316323	1577296	2739027	7604060

wt.	Sinus	Logarithmi	Difference	Logarithmi	Sinus
30	6494480	4316313	1577296	2739027	7604060
31	6496692	4312919	1571407	2741512	7602170
32	6498903	4309517	1565518	2743999	7600280
33	6501114	4306116	1559629	2746487	7598389
34	6503324	4302717	1553740	2748977	7596498
35	6505533	4299320	1547852	2751468	7594606
36	6507742	4295925	1541964	2753961	7592713
37	6509950	4292532	1536077	2756455	7590819
38	6512158	4289141	1530191	2758950	7588925
39	6514365	4285752	1524305	2761447	7587031
40	6516572	4282365	1518420	2763945	7585136
41	6518778	4278980	1512535	2766445	7583240
42	6520984	4275597	1506651	2768946	7581343
43	6523189	4272216	1500767	2771449	7579446
44	6525394	4268837	1494884	2773953	7577548
45	6527598	4265460	1489001	2776459	7575650
46	6529801	4262085	1483119	2778966	7573751
47	6532004	4258712	1477237	2781475	7571851
48	6534206	4255341	1471356	2783985	7569951
49	6536408	4251972	1465476	2786496	7568050
50	6538609	4248605	1459596	2789009	7566148
51	6540809	4245240	1453717	2791523	7564246
52	6543009	4241877	1447838	2794039	7562343
53	6545208	4238516	1441960	2796556	7560439
54	6547407	4235157	1436082	2799075	7558535
55	6549606	4231800	1430205	2801595	7556630
56	6551804	4228445	1424328	2804117	7554724
57	6554001	4225092	1418451	2806641	7552818
58	6556198	4221741	1412575	2809166	7550911
59	6558394	4218392	1406699	2811693	7549004
60	6560590	4215044	1400823	2814221	7547096

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mi.	Sinus	Logarithm	Difference	Logarithm	Sinus
0	6560520	4215044	1400823	2814221	7547026
1	6562785	4211698	1394947	2816751	7545187
2	6564979	4208354	1389072	2819282	7543177
3	6567173	4205012	1383197	2821815	7541367
4	6569367	4201672	1377323	2824349	7539457
5	6571560	4198334	1371450	2826884	7537546
6	6573753	4194999	1365578	2829421	7535634
7	6575945	4191666	1359707	2831959	7533721
8	6578136	4188335	1353836	2834499	7531808
9	6580326	4185006	1347966	2837040	7529894
10	6582516	4181679	1342097	2839582	7527980
11	6584705	4178354	1336228	2842126	7526065
12	6586894	4175030	1330358	2844672	7524149
13	6589082	4171708	1324489	2847219	7522233
14	6591270	4168388	1318620	2849768	7520316
15	6593458	4165070	1312752	2852318	7518398
16	6595645	4161754	1306884	2854870	7516480
17	6597831	4158440	1401017	2857423	7514561
18	6600016	4155128	1295150	2859978	7512642
19	6602201	4151818	1289284	2862534	7510722
20	6604386	4148510	1283418	2865092	7508801
21	6606570	4145204	1277551	2867651	7506879
22	6608753	4141900	1271688	2870212	7504957
23	6610936	4138598	1265824	2872774	7503034
24	6613118	4135298	1259960	2875338	7501111
25	6615300	4132000	1254097	2877903	7499187
26	6617481	4128703	1248233	2880470	7497262
27	6619661	4125408	1242370	2883038	7495336
28	6621841	4122115	1236507	2885608	7493410
29	6624021	4118824	1230645	2888179	7491484
30	6626200	4115535	1224783	2890752	7489557

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mi.	Sinus	Logarithmi	Differentia	Logarithmi	Sinus
30	6626200	4115535	1224783	2890752	7489557
31	6628379	4112248	1218922	2893326	7487629
32	6630557	4108963	1213061	2895902	7485700
33	6632734	4105680	1207201	2898479	7483771
34	6634911	4102399	1201341	2901058	7481842
35	6637087	4099120	1195482	2903638	7479912
36	6639263	4095843	1189623	2906220	7477981
37	6641438	4092567	1183763	2908804	7476049
38	6643612	4089293	1177904	2911389	7474117
39	6645786	4086021	1172045	2913976	7472184
40	6647959	4082751	1166187	2916564	7470251
41	6650132	4079483	1160329	2919154	7468317
42	6652304	4076217	1154472	2921745	7466382
43	6654476	4072953	1148615	2924338	7464447
44	6656647	4069691	1142759	2926932	7462511
45	6658817	4066431	1136904	2929527	7460574
46	6660987	4063173	1131049	2932124	7458637
47	6663156	4059917	1125195	2934722	7456699
48	6665325	4056663	1119341	2937322	7454761
49	6667493	4053410	1113487	2939923	7452822
50	6669661	4050159	1107633	2942526	7450882
51	6671828	4046910	1101780	2945130	7448941
52	6673994	4043663	1095927	2947736	7447000
53	6676160	4040418	1090074	2950344	7445058
54	6678326	4037175	1084222	2952953	7443116
55	6680491	4033934	1078370	2955564	7441173
56	6682655	4030695	1072518	2958177	7439229
57	6684818	4027458	1066667	2960791	7437284
58	6686981	4024223	1060816	2963407	7435339
59	6689144	4020990	1054966	2966024	7433394
60	6691306	4017759	1049116	2968643	7431448

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mi.	Sinus	Logarithmi	Differentia	Logarithmi	Secan	P.
0	6691306	4017719	1049116	2968643	7431448	60
1	6693468	4014829	1043266	2971263	7429501	59
2	6695629	4011931	1037416	2973885	7427553	58
3	6697789	4008075	1031567	2976508	7425605	57
4	6699949	4004811	1025718	2979133	7423657	56
5	6702108	4001629	1019870	2981759	7421708	55
6	6704267	3998429	1014023	2984386	7419758	54
7	6706425	3995191	1008176	2987015	7417807	53
8	6708583	3991974	1002329	2989645	7415856	52
9	6710739	3988719	996482	2992277	7413905	51
10	6712895	3985546	990636	2994910	7411953	50
11	6715051	3982335	984790	2997545	7410000	49
12	6717206	3979126	978944	3000182	7408046	48
13	6719361	3975917	973099	3002820	7406092	47
14	6721515	3972714	967254	3005460	7404137	46
15	6723668	3969511	961409	3008102	7402181	45
16	6725821	3966310	955565	3010745	7400225	44
17	6727973	3963110	949720	3013390	7398268	43
18	6730125	3959912	943876	3016036	7396311	42
19	6732276	395716	938032	3018684	7394353	41
20	6734427	3953522	932189	3021333	7392394	40
21	6736577	3950330	926346	3023984	7390435	39
22	6738726	3947140	920504	3026636	7388475	38
23	6740875	3943951	914661	3029290	7386515	37
24	6743024	3940764	908819	3031945	7384554	36
25	6745172	3937579	902977	3034602	7382592	35
26	6747319	3934396	897135	3037261	7380629	34
27	6749465	3931215	891294	3039921	7378666	33
28	6751611	3928036	885453	3042583	7376702	32
29	6753757	3924859	879613	3045246	7374738	31
30	6755902	3921683	873773	3047911	7372773	30

num.	Sinus	Logarithmi	Differentia	Logarithmi	Sinus
30	6755902	3921684	873773	3047911	7372773
31	6758047	3918511	867934	3050577	7370807
32	6760191	3915339	822094	3053245	7368841
33	6762334	3912169	856255	3055914	7366874
34	6764477	3909001	850416	3058585	7364907
35	6766619	3905835	844577	3061258	7362939
36	6768760	3902671	838739	3063932	7360970
37	6770901	3899509	832901	3066608	7359001
38	6773041	3896348	827063	3069285	7357031
39	6775181	3893189	821225	3071964	7355061
40	6777320	3890032	815388	3074644	7353090
41	6779459	3886877	809551	3077326	7351118
42	6781597	3883723	803714	3080009	7349145
43	6783734	3880571	797877	3082694	7347173
44	6785871	3877421	792041	3085380	7345199
45	6788007	3874273	786205	3088068	7343225
46	6790143	3871127	780369	3090758	7341250
47	6792278	3867983	774534	3093449	7339274
48	6794413	3864841	768699	3096142	7337298
49	6796547	3861701	762865	3098836	7335322
50	6798681	3858563	757031	3101532	7333345
51	6800814	3855426	751197	3104229	7331367
52	6802946	3852291	745363	3106928	7329388
53	6805078	3849158	739529	3109629	7327409
54	6807209	3846027	733696	3112331	7325429
55	6809340	3842898	727863	3115035	7323449
56	6811470	3839770	722029	3117741	7321468
57	6813599	3836644	716196	3120448	7319486
58	6815728	3833520	710363	3123157	7317504
59	6817856	3830398	704530	3125868	7315521
60	6819984	3827278	698698	3128580	7313537

mi	Sinus	Logarithmi	Differentia	Logarithmi	Sinus
0	6819984	3827278	698698	3028580	7313537
1	6822111	3824160	692866	3131294	7311555
2	6824237	3821044	687035	3134009	7309568
3	6826363	3817929	681203	3136726	7307583
4	6828489	3814816	675372	3139444	7305597
5	6830614	3811705	669541	3142164	7303610
6	6832738	3808596	663711	3144885	7301623
7	6834861	3805488	657880	3147608	7299635
8	6836984	3802382	652050	3150332	7297647
9	6839107	3799278	646221	3153057	7295658
10	6841229	3796176	640392	3155784	7293668
11	6843350	3793075	634562	3158513	7291678
12	6845471	3789976	628732	3161244	7289687
13	6847591	3786879	622903	3163976	7287695
14	6849711	3783784	617074	3166710	7285703
15	6851830	3780691	611246	3169445	7283710
16	6853949	3777600	605418	3172182	7281722
17	6856067	3774510	599589	3174921	7281711
18	6858184	3771422	593760	3177662	7277728
19	6860301	3768336	587932	3180404	7275733
20	6862417	3765252	582104	3183148	7273737
21	6864533	3762170	576277	3185893	7271741
22	6866648	3759090	570450	3188640	7269744
23	6868762	3756011	564622	3191389	7267746
24	6870876	3752934	558795	3194139	7265748
25	6872989	3749859	552968	3196891	7263749
26	6875102	3746786	547142	3199644	7261749
27	6877214	3743714	541315	3202399	7259748
28	6879325	3740644	545489	3205155	7257747
29	6881436	3737576	539663	3207913	7255746
30	6883546	3734510	533838	3210672	7253744